Unit 1 Concept 1

Plant Needs

P.O.C	Plants	Humans and Animals
Similarities	• All living organisms need water and air.	
Differences	They are different in: • Structure • Some needs • The way of getting food and gases	
Basic Needs (to survive)	• Air • Water • Sunlight • Nutrients	• Air • Water • Food • Shelter
Way of Getting Energy	Plants can make their own food (glucose) inside their leaves through the photosynthesis process.	They must move to get food because they can't make their own food.
Way of Getting Gases	Gases enter plants through the stomata in the leaves.	Air enters the human body through the mouth and nose, then travels to the lungs.

Some Concepts about Plant Needs:

Sunlight



1 A plant has been placed in the sunlight.

- It grows strong and healthy.
- It grows with a tall stem.
- It has more dark green leaves.

2 A plant has been placed in a dark room.



- It grows weak and unhealthy.
- It grows with a short stem.
- It has less pale green leaves.

Soil



Soil isn't included as a basic need for plants because some plants may grow in water, or on another plant.

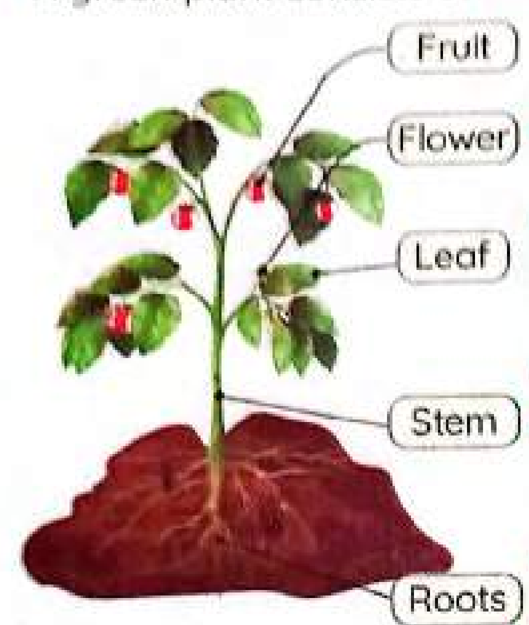
A plant can grow on a wet paper towel.
- The initial growth of the seeds in the wet paper towel and soil is similar.
- The seeds planted in wet paper towels grow slower than those planted in soil.



Hydroponic system:
It is a system full of water that contains important minerals and elements for plants to grow.

Plant Structure

- All structures inside the plant help it survive and grow.
- A green plant consists of roots, stem, leaves, and sometimes fruits and flowers.



Flower
- Helps the plant reproduce by producing seeds.

Leaf
- Making the plant's food (glucose) through photosynthesis.

Stem
- Supports the plant parts.
- Carries water and nutrients from the roots to the leaves through the xylem.

Roots
- Absorb water and nutrients from the soil.
- Fix the plant in the soil.

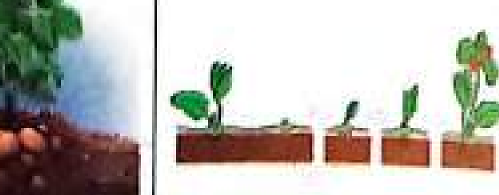
Other small structures inside the plant:

Root hairs (extend from the roots)	They increase the amount of water and nutrients absorbed from the soil.
Xylems	They are smaller vessels that transfer water and nutrients from the roots to the leaves.
Phloems	They transfer food from the plant's leaves to other plant parts.
Chlorophylls (inside the leaf)	They capture the light energy from the Sun. They are responsible for the green color of the leaves.
Stomata (inside the leaf)	They are pores on the plant leaf that allow air to move in or out.



Types of Stems



1 Wood Stem	2 Upright Stem	3 Climb Stem	4 Tubers Stem	5 Runners Stem
				
Tree trunks and shrubs	Most flowers	Vine (grapes)	(Extend underground) Potato plants	Extend above and along the ground and help to form new plants.

Types of Leaves



1 Narrow Leaves (Look like needles) (as pine trees)	2 Flat and Wide Leaves
	

Flowers

- Flowers are reproductive parts of a plant as they help the plant to reproduce by producing seeds.
- Flowers on plants have different shapes, sizes, and colors.
- Some plants have very small flowers that are hardly noticeable, such as grass.
- Sunflowers have small, dark-colored seeds in the center of the flower.

Ways of Seed Dispersal

Seed dispersal • It is the transferring of seeds from one place to another.

- The way of seed dispersal depends on the shape and size of the seeds.

1 Floating on water surface





Coconut Seeds

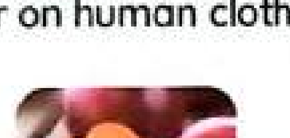


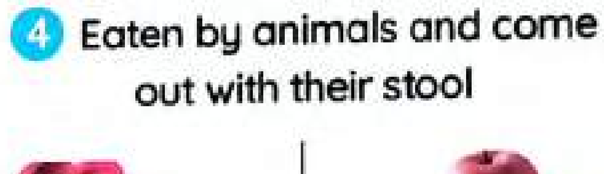
Maple Seeds



Dandelion Seeds

3 Sticking on animals' fur or on human clothing





Plum Seeds (rough seeds, have spine)



Tomato Seeds



Apple Seeds

Photosynthesis



It is the process in which the plant uses the light of the Sun to make its own food inside the plant leaves.



Carbon dioxide

Steps:

1. Plant's roots absorb water and nutrients from the soil.
2. The xylem transports water and nutrients from the roots to the leaves.
3. The chlorophyll captures the light energy from the Sun.
4. The stomata allow air to enter the plant's leaf.
5. In the presence of sunlight, water combines with carbon dioxide gas to make sugar called glucose.
6. The phloem moves the glucose from the leaves to other parts of the plant.
7. The plant releases oxygen and water in the air.

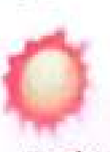
Energy Transformation:

- Light energy absorbed from sunlight is converted into chemical energy.

Products of Photosynthesis:

1. Glucose as a source of energy for plants.
2. Plants release oxygen gas and water into the air.

(Oxygen gas is considered one of the basic needs for humans and animals)





Light energy + Carbon dioxide gas + Water and mineral salts —Photosynthesis→ Glucose + Oxygen gas & Water vapor

Comparing Plants and Humans Systems

P.O.C	Human Circulatory System	Plants Transport System
Drawing	 	Water and minerals Food
Structure	• It consists of the heart and blood vessels (arteries, veins and blood capillaries). • Arteries: They carry blood rich with oxygen and glucose from the heart to the organs, muscles, bones, and cells so that the body can grow and heal. • Veins: They return the blood that carries carbon dioxide and is low in nutrients and oxygen to the heart for a recharge.	• Xylem: Transports water and nutrients from the roots to the plant's leaves. • Phloem: A set of tubes that transports the food materials from the leaves to other parts of the plant.
Similarities	1. They are similar in function, which is transporting nutrients and gases to all parts of the living organism. 2. Both have one-way vessels.	

Unit 1 Concept 2

Energy Flow in Ecosystems

Ecosystem: It's a community that contains living organisms that interact with nonliving things.

Ecosystem Components

Living Organisms	Biotic Factor	• Humans	• Animals	• Plants
Nonliving Things	Abiotic Factor	• Air	• Soil	• Water

Ecosystem examples:

Forest	Desert	Sea	Tundra

- Ecosystems provide living organisms with food and shelter to survive.
- Energy moves between animals when they feed on each other.
- When living organisms die, their bodies decompose.
- Animals don't choose their food, but they eat what their bodies need.

Caracals eat mice.	Rabbits eat grass.	Birds eat butterflies and worms.



- Hawks are meat-eating animals
- Hawks eat snakes, mice, fish, birds, squirrels, rabbits, and other small ground animals
- Hawks don't eat plants, but they eat animals that eat plants. So, they also depend on plants.
- Hawks are attacked by a few predators, such as eagles and other hawks
- When hawks die, decomposers return their energy to the soil.

Energy Transfer in Ecosystems

- The Sun is the primary (main) source of energy for all living organisms.

1 Producers: (The first link in any food chain)

- They are living organisms that can make their own food in the presence of sunlight.
- Examples: Green plants - Algae

2 Consumers:

- They are living organisms that feed on other organisms to get energy.

a. Primary consumers: (The second link in a food chain)
They are living organisms that eat producers, such as insects.

b. Secondary consumers:
They are living organisms that eat primary consumers, such as birds.

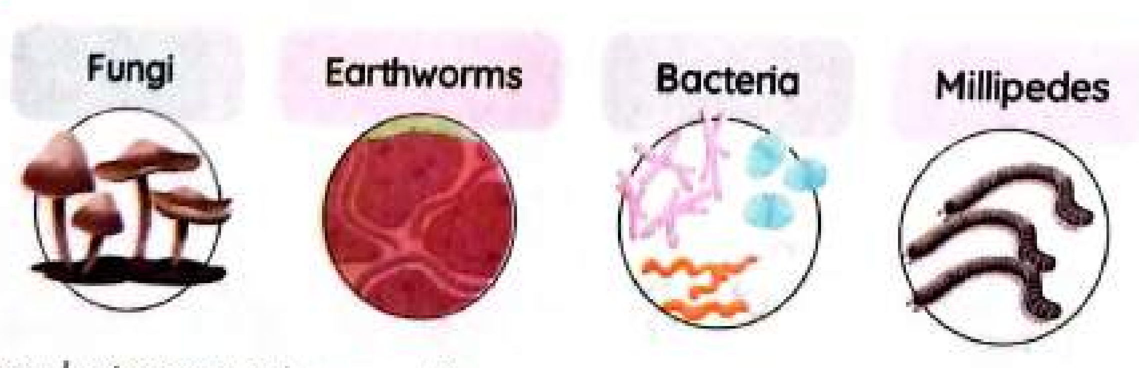
c. Tertiary consumers: (The third link in a food chain)
They are living organisms that eat secondary consumers, such as alligators.

3 Decomposers: (The final link in any food chain)

- They are living organisms that carry out the decomposition process by decaying dead organisms.
- Importance:

a. Recycling nutrients back into the ecosystem.

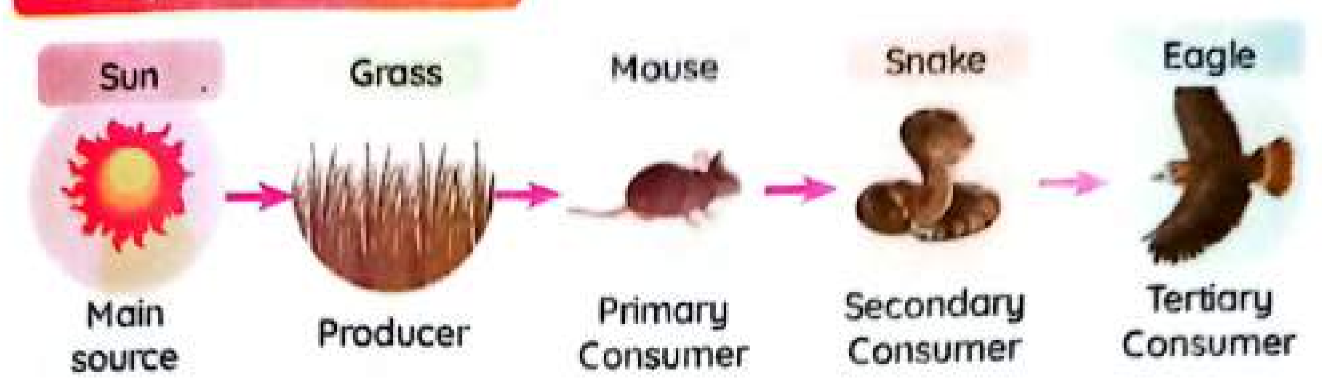
b. Increasing the soil's fertility.



- Green plants are producers, while animals and humans are consumers.

Food chain • It is a model that shows a linear set of feeding relationships and the movement of energy among living organisms.

Example of a food chain:

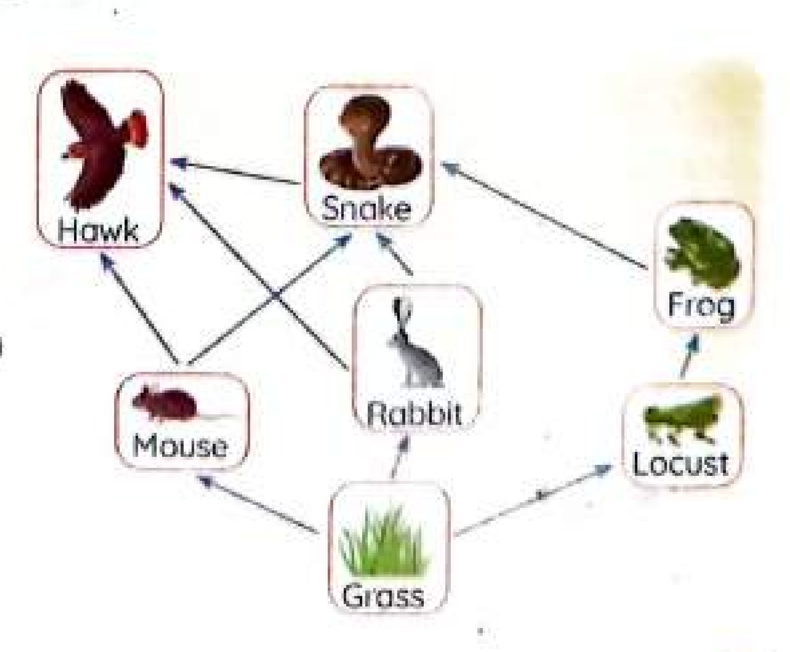


- The energy from the Sun passes to the grass, then to the mouse, then to the snake, then to the eagle.



Food web • It is a model that shows many different feeding relationships among living organisms.

- A food web is made up of several interconnected food chains.
- The food web is better than the food chain in showing the interaction among organisms.



Dr. Becky Barak

- She is a plant-community ecologist
- She gets to do her research out on the natural areas (not inside a lab).
- She learned about ecology, and took a class in restoration ecology.



Seed dispersal

1 Sticky Seeds	2 Light (Flying) Seeds
Their seeds can stick to Human clothing — Animal fur  	They are dispersed by the wind. **How?** • The seeds are released from the plant when the plant is ready. • The seeds fly away to new habitats to grow in other places.



Unit 1 Concept 1 Definitions

Photosynthesis process	It is the process through which plants use the energy of the Sun to make their own food.
Stomata	They are pores on the plant's leaves that allow gases to move in and out of the plant.
Glucose	It's the sugar that is produced during the photosynthesis process and it provides energy for the plant to survive and grow.
Plant reproduction	It is the process of making new plants.
Circulatory system	It is the system that transports blood and other fluids throughout the body.
Arteries	They're blood vessels which carry blood that is rich in oxygen and nutrients (glucose) from the heart to the body cells, so that the body can grow.
Veins	They're blood vessels that carry the blood containing carbon dioxide gas and that is low in nutrients and oxygen from all body parts back into the heart.
Xylems	They're tubes that carry water and nutrients from the roots to the leaves.
Phloems	They're tubes that carry sugar from the leaves to all plant parts.
Flowers	They are the reproductive parts of the plant.
Seed dispersal	It's the transfer of seeds from a place to another.

Unit 1 Concept 2

Ecosystem	It's a community that contains living organisms and nonliving things that interact with each other.
Producers	They are organisms that can make their own food.
Consumers	They are organisms that eat other living organisms to get their energy because they cannot make their own food.
Primary consumers	They are animals that eat producers.
Secondary consumers	They are animals that eat primary consumers.
Tertiary consumers	They are animals that eat secondary consumers.
Decomposers	They are organisms that carry out the process of decomposition by decaying dead organisms.
Prey	They are animals hunted (eaten) by other animals.
Predators	They are animals that hunt (eat) other animals.
Food chain	It is a model that shows one linear set of feeding relationships and the movement of energy between living organisms.
Food web	It is a model that shows many different feeding relationships among living organisms.

Unit 1 Concept 1 Give Reason

1. Plants' roots have great functions.
   - Plant's roots absorb water and nutrients from the soil.
   - Plant's roots fix the plant in the soil.
2. Sunlight is considered a basic plant need.
   - Because the plant uses the light energy of the Sun to make its own food through photosynthesis process.
3. Plants are important for human life.
   - Because green plants produce oxygen gas during photosynthesis process.
4. Living organisms are different in the way of getting food.
   - Because plants can make their own food in their leaves through photosynthesis, while animals and humans must eat food to get energy.
5. Soil isn't considered a basic need for plants.
   - Because some plants don't need soil to grow and they may grow in water, or on another plant.
6. Roots' hairs help the plant to survive and grow.
   - Because roots' hairs increase the amount of absorbed water and nutrients from the soil.
7. The stem has great functions for plants.
   - It transports water and nutrients to the leaves through the xylem.
   - It supports the plant parts.
8. Leaves are very important for the plant to survive.
   - Because the leaves are responsible for making the plant's food through photosynthesis process.
9. Stomata have a great importance for the plant.
   - Because stomata allow air to go in or out the plant's leaf.
10. Chlorophyll has a great function for the plant.
    - Because chlorophyll captures (absorbs) the light energy from the Sun.
11. Xylem is very important for plants.
    - Because xylem transfers water and nutrients from the roots to the leaves.
12. Phloem is very important for plants.
    - Because phloem transfers glucose from the leaves to other plant parts.

13 Photosynthesis process is very important for all living organisms.

For plants:

- Photosynthesis process helps the plants to make their own food (glucose).

For animals and humans:

- Photosynthesis process produces oxygen gas that is considered a basic need for them.

14 Human circulatory system is very important for humans.

- Because it transports the blood rich in gases and nutrients throughout the body.

15 Arteries play an important role in the human body.

- Because arteries carry the blood rich in oxygen and nutrients (glucose) from the heart to all body parts.

16 Veins play an important role in the human body.

- Veins return the blood that carries carbon dioxide gas and is low in nutrients and oxygen from the body cells to the heart.

17 Flowers have a great function for a plant.

- Flowers help the plant to reproduce as they produce seeds.

18 Seeds disperse in different ways.

- Because the way of seed dispersal depends on the shape and size of the seed.

19 Maple seeds can disperse by wind.

- Because they are light seeds.

20 Animals may disperse plum seeds

- Because plum seeds are rough and have spines so they stick to the animals' fur.



1 Food is very important for humans and animals.

- To get energy to live, grow and carry out vital processes.

2 Most insects are considered primary consumers.

- Because they feed on producers.

3 The ecosystem is very important for the survival of living organisms.

- Because an ecosystem provides living organisms with food and shelter.

4 A hawk is a meat-eating animal.

- Because a hawk eats snakes, fish, rabbits and mice.

5 Hawks depend on plants to get energy.

- Because hawks eat animals that eat plants.

6. The Sun is considered the main source of energy.
   - Because the energy of the Sun transfers to all living organisms on Earth.
7. Green plants are considered producers.
   - Because green plants can make their own food through photosynthesis.
8. Animals and humans are considered consumers.
   - Because they cannot make their own food, but they depend on other living organisms to get their energy.
9. Decomposers play important roles in the ecosystem.
   - They recycle nutrients back into the ecosystem.
   - They increase the soil fertility.
10. A food chain describes the food relationships among organisms.
   - Because food chains show the transfer of energy in the ecosystem when living organisms feed on one another.

Unit 1 Concept 1

What happens if

1. A plant is placed in a dark place?
   - The plant can't make photosynthesis process and it will die.
2. Some bean seeds are placed in a wet paper towel and others are placed i the soil?
   - The plant placed in the soil grows faster than that placed in the wet pape towel.
3. Plants have no roots?
   - The plants will not absorb water and nutrients from the soil, so they will di
4. Plants have no leaves?
   - The plants won't be able to make their own food, so they will die.
5. The chlorophyll is absent?
   - The plant can't absorb the light energy from the Sun.
6. A celery stalk is placed in a glass of colored water?
   - The xylem color changes to the color of the water in the cup.
   - The color of the leaves changes to the color of the water in the cup.
7. Xylem is removed from the plant structure?
   - Water and nutrients won't be transferred to the leaves.
8. The human body doesn't contain arteries?
   - Oxygen and nutrients won't be able to reach the cells and organs.
9. A plant doesn't have stomata on its leaves?
   - Gases cannot move in and out of the plant.
10. There is no heart or blood vessels in the human body?
    - Blood cannot move through the human body.



1. All primary consumers disappear from a food chain?
   - The secondary consumers will move to another ecosystem to search fo food or they will die.
2. Any organism in an ecosystem disappears?
   - The food web will be affected.
3. Any living organism dies?
   - Its body decomposes and the energy is recycled to the ecosystem.

4. The number of predators increases in an ecosystem?
   - The number of other consumers will decrease.
5. Decomposers disappear from an ecosystem?
   - Energy can't be recycled to the ecosystem and the Earth will be full of dead bodies.
6. The Sun is absent?
   - Plants cannot make their food, so they will die.

Concept 1 Revision

1 Choose the correct answer:

1. The human circulatory system consists of ______ .
   a. the heart
   b. veins
   c. arteries
   d. heart and blood vessels
2. Which of the following gases comes from the atmosphere and is absorbed by the leaves to make the plants' food?
   a. Carbon dioxide b. Glucose c. Oxygen d. Hydrogen
3. Stomata are pores on the surface of a plant's ______ that allow air to pass through.
   a. roots b. leaves c. stem d. flower
4. ______ carry the blood rich in oxygen and nutrients from the heart to all body parts.
   a. Veins b. Stems c. Xylems d. Arteries
5. ______ carry the blood rich in carbon dioxide gas back to the heart.
   a. Arteries b. Veins c. Lungs d. Xylems
6. Leaves contain ______ that captures the light energy and gives the leaves their green color.
   a. a stoma b. chlorophyll c. glucose d. oxygen
7. The photosynthesis process takes place inside the ______ .
   a. roots b. stems c. leaves d. flowers
8. Plants use energy from the ______ to produce their food from water and carbon dioxide gas.
   a. batteries b. fire c. sunlight d. wind
9. Plants produce ______ as a source of energy to live and grow.
   a. flowers
   b. carbon dioxide gas
   c. seeds
   d. glucose (sugar)

10 The .... system moves the blood rich in gases and nutrients through the body.

a. digestive b. circulatory c. respiratory d. nervous

11 Plants use energy from the sunlight to produce their food from water and carbon dioxide gas through a process called ....

a. digestion b. photosynthesis c. evaporation d. breathing

12 Arteries carry the blood rich in .... from the heart to the organs.

a. oxygen b. nutrients c. carbon dioxide d. a and b

13 Plants and humans need .... to survive.

a. water b. air c. soil d. water and air

14 The .... carries water and nutrients from the plant roots to the leaves.

a. xylem b. leaf c. root d. air

15 Which part of the plant plays a similar role to the human circulatory system in order to maintain the survival of the plant?

a. Stem b. Roots

c. Leaves d. Transport system

16 The stem of the vine plant is a/an ....

a. wood stem b. upright stem c. climb stem d. tuber stem

17 The .... support(s) all plant parts and transport water and nutrients to the rest of the plant.

a. roots b. stem c. leaves d. flowers

18 Coconut seeds disperse by ....

a. water b. wind c. humans d. animals

19 Plum seeds disperse by sticking to animals' fur because they ....

a. are light seeds b. have spines

c. are heavy seeds d. float on water

20 .... seeds are light seeds, so they travel by wind.

a. Tomato b. Apple c. Coconut d. Maple

21 Photosynthesis process takes place inside the leaves of plants. What type of gas does a plant release during photosynthesis?

a. Nitrogen gas
b. Hydrogen gas
c. Oxygen gas
d. Carbon dioxide gas

22 The ______ of a plant get water and nutrients from the soil.

a. roots b. stems c. leaves d. flowers

23 The ______ stem extends above the ground.

a. wood b. upright c. runners d. tubers

24 During the photosynthesis process, the plant produces ______ as waste material.

a. carbon dioxide b. oxygen gas c. sugar d. b and c

25 All the following organs are parts of the human circulatory system, except ______ .

a. the heart b. arteries c. veins d. lungs

26 Which part transports food from the leaves to the other parts of the plant?

a. Xylem tissue b. Small roots c. Chloroplast d. Phloem

27 A plant makes its food inside its leaves when the sunlight combines with water and ______ .

a. oxygen gas
b. the roots
c. the stems
d. carbon dioxide

28 Plants use ______ during the photosynthesis process.

a. food b. oxygen gas c. carbon dioxide gas d. glucose

29 The way of seed dispersal depends on the ______ of the seeds.

a. temperature and weather
b. shape and size
c. color and odor
d. all the previous answers

30 A ______ stem is the stem that extends underground.

a. runner b. tuber c. climb d. wood

2 Put (✓) or (✗):

1. The transport system in plants does the same function as the circulatory system in humans. ( )
2. Plants make their own food by respiration. ( )
3. Humans and plants can make their food by the photosynthesis process. ( )
4. The xylem helps the plant get water from the soil. ( )
5. Arteries carry the blood rich in oxygen to all body parts. ( )
6. All plants need soil to grow. ( )
7. The plant's stem has hairs that absorb oxygen gas from the air. ( )
8. A runner is a type of stem which extends underground. ( )
9. Air enters the plant through the roots. ( )
10. A phloem transports food materials from the leaves to other plant parts. ( )
11. Potatos have tuber stems which extend underground. ( )
12. A xylem transports water rich in nutrients from the soil to the leaves. ( )
13. Plants and humans are different in their ways of getting food. ( )
14. Plants produce carbon dioxide and glucose during the photosynthesis process. ( )
15. The method of seed dispersal depends on the shape and size of the seeds. ( )
16. Photosynthesis process takes place in the plant roots. ( )
17. The plant left in the dark has large numbers of green leaves. ( )
18. Sunlight is very important for the plant to survive. ( )
19. Coconut seeds can travel by wind because they are light seeds. ( )
20. Animals fur helps tomato seeds disperse. ( )



Correct the underlined words:

1. Chlorophyll in the plant's roots absorbs energy from the sunlight.
2. Potato plants have runner stems.
3. Plants make digestion process to make their own food.
4. Flowers allow gases to move in and out of the plant.
5. Shrubs have climb stems.
6. Stomata are responsible for the absorption of sunlight.
7. Plants take air through tiny holes on the stem called stomata.
8. The stem fixes the plant in the soil.
9. Plants use oxygen gas during the photosynthesis process.
10. Most flowers have climb stems.



Write the scientific term:

1. They fix the plant in the soil.
2. They are the reproductive parts of plants.
3. It's a part of the plant where sunlight allows carbon dioxide to combine with water during the photosynthesis process.
4. It's a part of the plant that supports the leaves and other plant parts.
5. It is found in the plant's leaves; it gives them their green color and absorbs energy from the Sun.
6. They're narrow holes spread on the plant's leaves that allow gases to come in and out of the plant.
7. The system that transports blood throughout the human body.
8. A blood vessel that carries the blood rich in carbon dioxide and low in oxygen.
9. Blood vessels carry oxygenated blood from the heart to all body parts.
10. The system that transports water, minerals, and sugars throughout the plant body.
11. They are tubes in the plant that transport food materials from the leaves to all plant parts.

12 The vessels in a plant through which water and nutrients move up from the roots to the leaves.
13 The primary source of energy for all organisms on Earth.
14 The process by which plants make their own food using the energy of sunlight.
15 It is the process of transporting seeds from one place to another.
16 It's the process of producing new plants.
17 It's a gas produced (released) during photosynthesis and is needed for the respiration of living organisms.
18 The gas that the plant needs to make the photosynthesis process.
19 It's a system full of water that contains important minerals for plants to grow.

5 Cross out the odd word:

1 Carbon dioxide gas – Water – Glucose sugar – Sunlight
2 Heart – Roots – Stems – Leaves
3 Green plant – Shelter – Water – Carbon dioxide gas
4 Arteries – Veins – Stem – Blood

6 Give reasons for:

1 Food is very important for humans.
2 Plants' roots have great functions.
3 Sunlight is very important for plants.
4 Plants are important for human life.
5 Chlorophyll is very important for plants.
6 The stem has a great function for plants.
7 Stomata have a great importance for plants.
8 Xylem and phloem are very important for plants.
9 Flowers have a great function for plants.
10 Photosynthesis process is very important for all living organisms.

7 What happens if:

1. A plant is placed in a dark place?
2. Bean seeds are placed on a wet paper towel and other seeds are placed in the soil?
3. Plants have no leaves?
4. Leaves have no chlorophyll?
5. Xylem is removed from the plant structure?

8 Complete the following sentences using the words between the brackets:

1. (xylem - Phloem - stomata - stems)
   a. .... transports the glucose from the leaves to other plant parts.
   b. Water and nutrients move up the plant's stem through the ....
   c. Potatoes have tuber ....
   d. The .... on the leaves allow gases to move in and out the plant.
2. (leaves - stem - seeds - roots)
   a. The .... supports all plant parts.
   b. A flower produces .... for reproduction.
   c. The .... fix the plant in the soil.
   d. Photosynthesis process is the process of making food inside the .... of the plant.
3. (water - carbon dioxide - nutrients - leaves - Flowers)
   a. Gases enter plants through the ....
   b. Plant roots absorb .... and .... from the soil.
   c. .... are the reproductive parts of many plants.
   d. Plants take .... gas from the air to make their food.
4. (Water - green leaves - Green plants - Sun)
   a. The .... in a plant are responsible for making its food.
   b. .... is a source of energy for the plant to make photosynthesis process.
   c. .... are living organisms that can make their own food.
   d. .... is a liquid substance that plants, animals and humans need to survive.

5 (carbon dioxide gas - sugar - stomata - water)

a. Without the .... in the leaves of plants, air can't move in or out the plant.

b. The food of a plant is a type of .... which is made in their leaves by photosynthesis process.

c. During photosynthesis process, ... and .... are changed into glucose.

9 Choose from column (A) what suits it in column (B):

A

Column (A)	Column (B)
1 Plants' roots	a. moves glucose from the leaves to other plant parts.
2 Phloem	b. transports water rich in nutrients up to the leaves.
3 Xylem	c. absorb water and nutrients from the soil.

1 .... 2 .... 3 ....

B

Column (A)	Column (B)
1 Chlorophyll	a. are the reproductive parts of the plant.
2 Flowers	b. captures the light energy from the Sun.
3 Roots	c. get water and nutrients from the soil.
	d. move the nutrients from the leaves to all plant parts.

1 .... 2 .... 3 ....

C

Column (A)	Column (B)
1 Potato	a. extends above the ground.
2 Runners stem	b. plant has climb stems.
3 Vine	c. plant has tuber stem.
	d. is the stem of most flowers.

1 .... 2 .... 3 ....



Column (A)	Column (B)
1 Tomato seeds	a. disperse by animals' digestive systems
2 Dandelion seeds	b. disperse by floating on water
3 Coconut seeds	c. disperse by wind
	d. disperse by sticking to animals' fur

1 ...... 2 ...... 3 ......



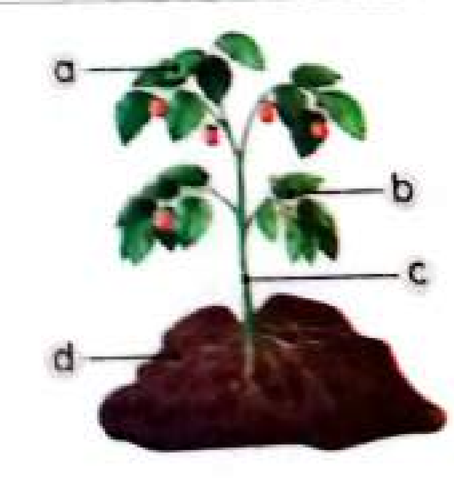
10 Answer the following questions:

1. Mention two methods of seed dispersal.
2. What are the main parts of a plant?
3. a. This figure represents the ...... system.
   b. ...... carry the blood rich in oxygen.
   c. Veins transport blood from the ...... to the ....
4. Classify the following plants according to the way of dispersal:
   (By wind – Sticking to clothes – By water)

		
Plum seeds	Coconut seeds	Dandelion seeds

11 Complete the following sentences using the words between the brackets:

(Root – Leaves – carbon dioxide gas – glucose – water – Flower – Stem – oxygen gas – sunlight)



1. Label the opposite figure:
   a. ...... b. ......
   c. ...... d. ......
2. During photosynthesis process, the plant takes ......, ... and ......; to produce ...... and ....

Concept 2 Revision

1 Choose the correct answer:

1. The desert food web starts with the ....
   a. rabbit b. grass c. algae d. insects
2. Food chains include producers, consumers and decomposers. Which of the following is an example of one of these three species?
   a. Grass, rabbit, fungi b. Leaf, eagle, robin
   c. Seed, mouse, owl d. Fly, spider, mantis
3. .... is an area that consists of living organisms and nonliving things.
   a. Ecosystem b. Space c. Sun d. Star
4. A snake is a predator for mice, while a snake is considered prey for ....
   a. rabbits b. frogs c. eagles d. deer
5. Plants are considered .... that get their energy from the Sun.
   a. decomposers b. consumers
   c. producers d. nonliving things
6. The mouse eats grass and seeds, while the owl eats the mouse. This is an example of ....
   a. meat-eating animals b. a food web
   c. plant-eating animals d. a food chain
7. Any food chain starts with ....
   a. producers b. decomposers c. fungi d. consumers
8. Choose the correct order of the food chain: ....
   a. Plant → hawk → snake → mouse
   b. Plant → mouse → hawk → snake
   c. Plant → mouse → snake → hawk
   d. Hawk → snake → mouse → plant
9. Insects are considered .... because they feed on producers.
   a. producers b. primary consumers
   c. decomposers d. secondary consumers

10 Which of the following living organisms is considered a producer?
a. Fungus b. Pine tree c. Snake d. Cow

11 A snake eats a rabbit which eats grass; the snake is a .... in the food chain.
a. primary consumer b. secondary consumer
c. producer d. tertiary consumer

12 Energy flows from one organism to another. Which is the correct direction of the energy flow?
a. From consumers to producers b. From producers to consumers
c. From predators to prey d. From producers to predators

13 .... in food webs are consumers.
a. Plants b. Predators c. Bacteria d. Algae

14 When a squirrel dies in the desert, its body will ....
a. grow b. freeze c. stay d. decompose

15 .... are organisms that eat other living organisms to get their energy.
a. Producers b. Consumers
c. Plants d. Decomposers

16 .... is the process which happens to all dead organisms.
a. Decomposition b. Breathing c. Photosynthesis d. Digestion

17 All the following are consumers, except ....
a. animals b. humans c. birds d. worms

18 All the following are decomposers, except ....
a. grass b. fungi c. millipeds d. bacteria

19 .... is/are consumers.
a. Plants b. Grass c. Humans d. Bacteria

20 .... always benefit the soil.
a. Decomposers b. Consumers c. Rabbits d. Snakes

21 If there are no predators in an ecosystem, the other consumers will ....
a. die b. not be affected c. increase d. decrease

22 What is the scientific term for the complex interactions between producers, consumers, and predators?
a. A suitable environment b. Food chain
c. Food web d. The natural habitat

23 Food webs show ....

a. nonliving things in the environment

b. multiple feeding relationships between living organisms

c. the way heat is retained in the environment

d. substances polluting the atmosphere

2 Put (✓) or (✗):

1 Food webs show how many organisms share food resources within ecosystems. ( )

2 Producers and bacteria are considered examples of consumers. ( )

3 Consumers complete the decomposition process. ( )

4 A food web is made up of two food chains or more. ( )

5 Consumers come after decomposers in the food chain. ( )

6 Decomposers include worms, locusts and fungi. ( )

7 Photosynthesis process is very important for life on Earth. ( )

8 Any food chain starts with a consumer. ( )

9 Energy does not flow between two consumers at the beginning of a food chain. ( )

10 Hawks, crocodiles, and sharks are producers. ( )

11 Seeds and carrots are examples for producers. ( )

12 In an ecosystem that contains only rabbits, mice, snakes, and eagles, if snakes disappear completely, the number of rabbits will increase. ( )

13 The relationship between grass and rabbit is a "prey-predator" relationship. ( )

14 Birds are tertiary consumers because they eat insects that feed on plants. ( )

15 The consumer eaten by another consumer is known as a predator. ( )

16 Dead organisms need energy. ( )

17 Consumers use carbon dioxide gas to make their food. ( )

18 Humans and animals are consumers. ( )

19 The food web will be damaged if the producers die. ( )

20 Producers and decomposers can make their own food. ( )

21 The grass-eating animals are the primary consumers in the food chain. ( )

22 Plants and humans are different in their ways of getting food ( )

3 Complete the following sentences using the words between the brackets:

(Predator - decomposition - Humans - ecosystem - animals - energy - millipedes - producers - Food web - food - Worms - secondary)

1 The .... process restores the energy to the ecosystem.

2 When a hawk eats a snake, this means that the hawk is a ....

3 An .... is an area that provides food, water, and shelter to all living organisms that live there.

4 .... and .... are consumers.

5 Both humans and animals cannot produce their own ....

6 .... is an interaction of a food chain.

7 In any food chain, plants are considered a ....

8 .... and .... are two types of decomposers.

9 In a food chain, the energy flows from a primary consumer to a .... consumer.

10 A food web is a model that describes the .... flow between living organisms in an ecosystem.

4 Write the scientific term:

1 It's a natural process through which the nutrients found in dead organisms' bodies return to the ecosystem.

2 The final link in the food chain.

3 It's a group of living organisms that can produce their own food.

4 They are animals that eat plants.

5 They are consumers that feed on primary consumers.

6 It's a group of living organisms that feed on secondary consumers.

7 It is a model that shows one linear set of feeding relationships and energy flow between living organisms.
8 The animal that is eaten by another animal.
9 It's a community that contains living organisms and nonliving things.
10 It's a group of interconnected food chains.
11 It is the primary source of energy for all living organisms on Earth.

5 Cross out the odd word:

1 Foxes - Lions - Tigers - Frogs
2 Eagle - Hawk - Rabbit - Crocodile
3 Bacteria - Cows - Birds - Snakes

6 Choose from column (A) what suits it in column (B):

A

Column (A)	Column (B)
1 Producers	a. increase soil fertility.
2 Decomposers	b. is made up of several interconnected food chains.
3 Food web	c. is a process in which the nutrients are returned to the ecosystem.
4 Decomposition process	d. get energy from the Sun.

1 .... 2 .... 3 .... 4 ....

B

Column (A)	Column (B)
1 Prey	a. are animals that feed on other animals
2 Secondary consumers	b. are organisms which eat animals that eat plants.
3 Primary consumers	c. are organisms that eat plants.
4 Predators	d. are animals that are hunted by other animals.

1 .... 2 .... 3 .... 4 ....

7 Give reasons for:

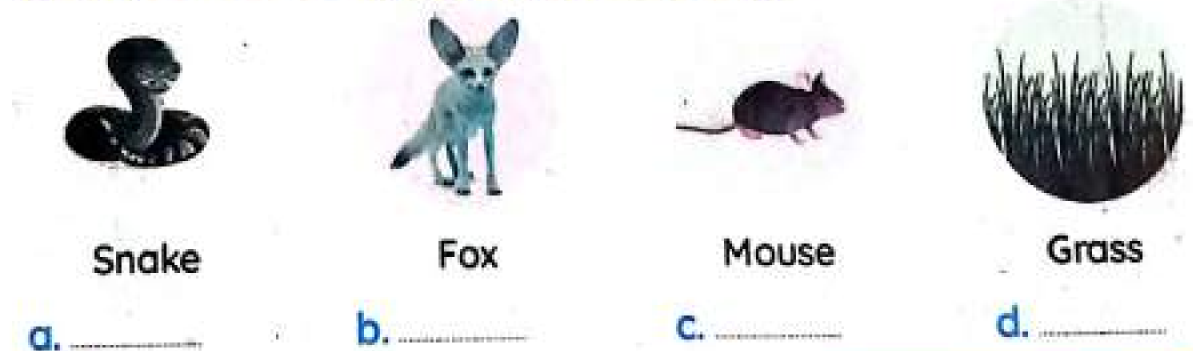
1. A rabbit is considered a primary consumer.
2. An ecosystem is very important for the survival of living organisms.
3. A hawk is a meat-eating animal.
4. Hawks depend on plants to get energy.
5. The Sun is considered the main source of energy.
6. Green plants are considered producers.
7. Animals and humans are considered consumers.
8. Decomposers play an important role in the ecosystem.

8 What happens if:

1. All primary consumers disappear from a certain food chain?
2. An organism in an ecosystem disappears?
3. A living organism dies?
4. Producers (grass) are removed from any ecosystem?
5. The number of predators increases in an ecosystem?
6. Decomposers disappear from an ecosystem?

9 Answer the following questions:

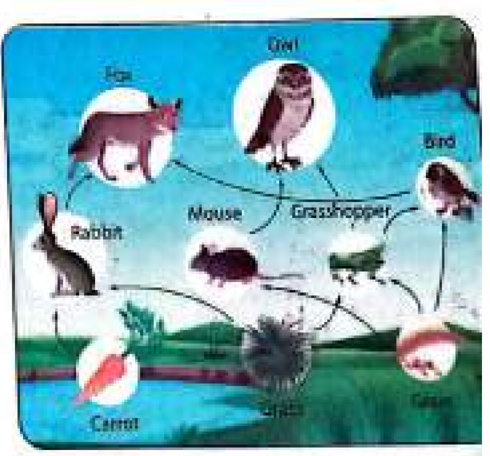
1. Arrange the following to form a food chain:



a. .... b. .... c. .... d. ....

2. a. The opposite figure represents a ....
(food chain – food web)

b. Form a food chain that includes a producer, a primary consumer, and a secondary consumer.



Model Exam 1

on Concept (1.1)

Total mark
____
15

1 (A) Choose the correct answer : *(5 marks)*

1. Blood rich in carbon dioxide gas returns back to the heart through ....
   a. arteries. b. veins. c. lungs. d. xylem.
2. .... plant has climb stems.
   a. Potato b. Tomato c. Vine d. Pine
3. Plants produce .... during photosynthesis process.
   a. water and glucose
   b. oxygen gas and glucose
   c. carbon dioxide gas and water
   d. glucose and carbon dioxide gas
4. All the following can help in seed dispersal, except ....
   a. wind.
   b. water.
   c. human and animals.
   d. soil and sunlight.

(B) What happens if ... ?

We put a seed of bean in wet soil for many days.

....

....

---

2 (A) Put (✓) or (✗) : *(5 marks)*

1. Blood rich in oxygen gas is carried by veins from the heart to the body parts. (   )
2. Light is important for plant growth. (   )
3. Plant's stem has hairs that absorb oxygen gas from the air. (   )
4. Glucose is a type of sugar that is produced by plants during the photosynthesis process. (   )

(B) Give a reason for the following :

Burr seeds can stick to animal fur.

....

....

3 (A) Write the scientific term of each of the following : *(5 marks)*

1. A liquid substance that plants, animals and humans need to survive. (..................)
2. Parts of the plant that are responsible for reproduction. (..................)
3. The source of energy for the plant to make photosynthesis process. (..................)
4. The plant that has a tuber stem. (..................)

(B) Look at the following figures, then complete the following sentences using the words below :

(soil – figure Ⓐ – figure Ⓑ)



Figure Ⓐ



Figure Ⓑ

1. The seeds in .... grow faster than those in ....
2. Seeds in figure Ⓑ should be transfered into .... to complete its growth.

Model Exam 

on Concept (1.1)

Total mark
—
15

1 (A) Complete the following sentences : *(5 marks)*

1. There are smaller vessels that transfer .... and nutrients from the plant's stem to leaves.
2. In plant's leaves, light energy of the Sun is converted into .... energy during photosynthesis process.
3. Arteries carry oxygen and nutrients from the .... to all the body parts.
4. Tree trunks have .... stems.

(B) Give a reason for the following :

There is no life on Earth in the absence of plants.

....

....

---

2 (A) Choose from column (B) what suits it in column (A) : *(5 marks)*

(A)	(B)
1. Roots	a. allow gases to move into and out of the plant.
2. Stems	b. collect sunlight and carbon dioxide gas which combines with water to help the plant to make its own food.
3. Leaves	c. absorb water and nutrients from the soil.
4. Stomata	d. transport water and nutrients from the roots to all parts of the plant.
	e. absorbs oxygen gas from the soil.

1. .... 2. .... 3. .... 4. ....

(B) Correct the underlined words :

1. Chlorophyll in plant's <u>roots</u> absorbs energy from the sunlight. (....................)
2. <u>Phloem</u> tubes carry water and nutrients from the roots to the leaves. (....................)

3 (A) Choose the correct answer :

(5 marks)

1. .... tree has narrow leaves.

   a. Potato b. Pine c. Acacia d. Grapes

2. Plants can produce new seeds by ....

   a. roots. b. leaves. c. stems. d. flowers.

3. .... seeds travel by wind.

   a. Coconut b. Maple c. Burr d. Apple

4. The heart in the human circulatory system consists of ....

   a. two arteries and two ventricles.

   b. two atria and two ventricles.

   c. two veins and two atria.

   d. two ventricles and two veins.

(B) Look at the opposite figure, then answer :

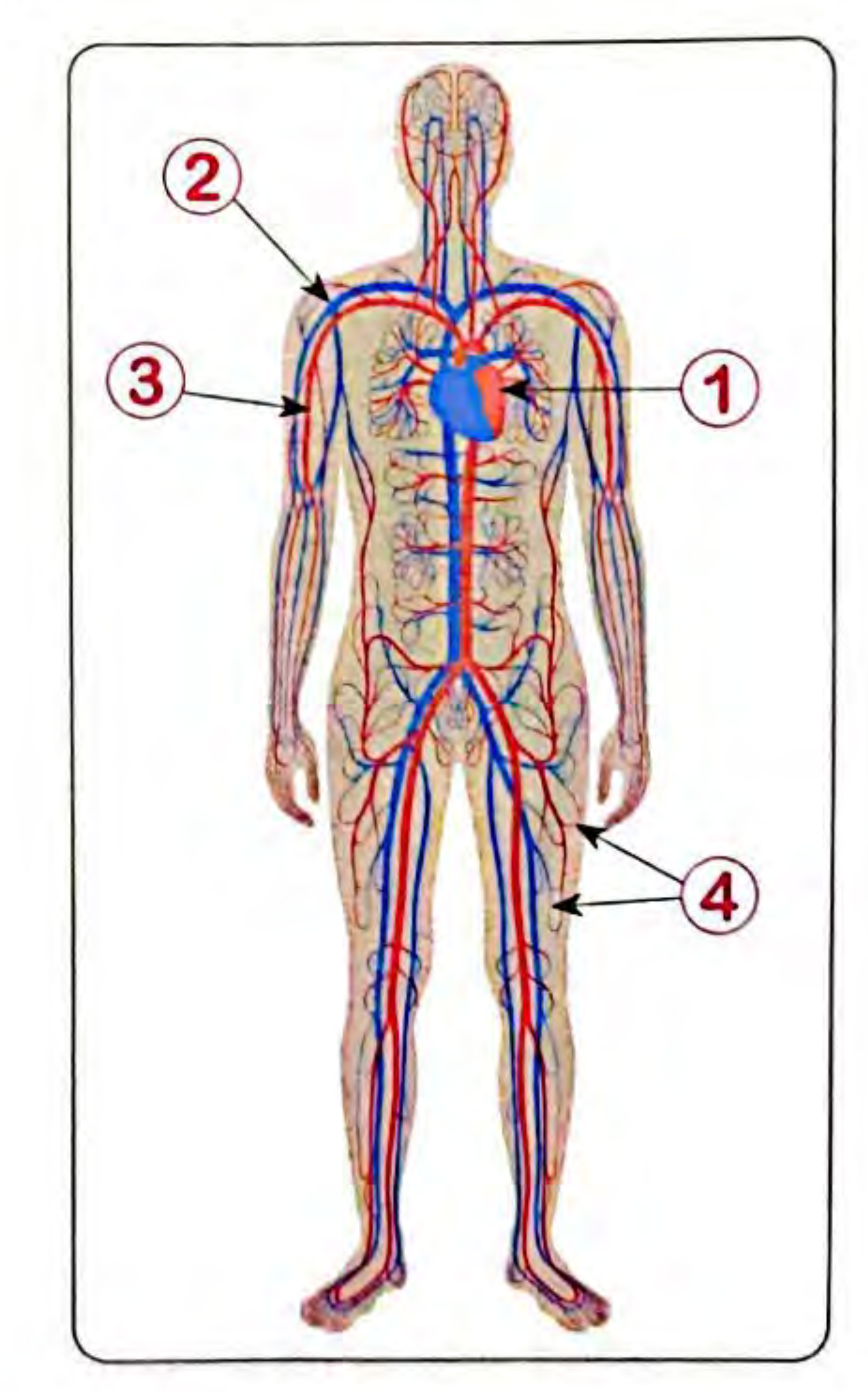
1. The opposite figure represents the human .... system.
2. Label the figure :

   ① ....

   ② ....

   ③ ....

   ④ ....



Model Exam 1



Total mark
15

1 (A) Choose the correct answer : *(5 marks)*

1. Hawk eats a rabbit to get energy, this means that ....
   a. hawk and rabbit are predators. b. the hawk is a predator.
   c. the hawk is a prey. d. the rabbit is a predator.

2. Photosynthesis process produces ....
   a. glucose sugar in the producers. b. glucose sugar in the consumers.
   c. water in decomposers. d. water in consumers.

3. All types of plants are similar in all the following characters, <u>except</u> ....
   a. they are eaten by primary consumers.
   b. they are able to make photosynthesis process.
   c. they live in different types of ecosystems.
   d. they can feed on predators.

4. Which of the following food chains shows the correct way of energy flow through living organisms ? ....
   a. Producer ⟶ predator ⟶ primary consumer.
   b. Predator ⟶ producer ⟶ secondary consumer.
   c. Producer ⟶ primary consumer ⟶ predator.
   d. Producer ⟶ secondary consumer ⟶ predator.

(B) What happens if ...?

All types of decomposers are absent from an ecosystem.

....

....

---

2 (A) Put (✓) or (X) : *(5 marks)*

1. All plants need the same way to disperse their seeds. ( )
2. Food web shows interaction between few living organisms. ( )
3. The first link in any food chain is a consumer. ( )
4. Hawks, alligators and sharks are considered as predators. ( )

(B) Give a reason for the following :

Some living organisms obtain their needed energy by eating other living organisms.

....

....

3 (A) Complete the following sentences : *(5 marks)*

1. All living organisms need .... to do their activities and to carry out their life processes.
2. Plants produce .... and .... during photosynthesis process.
3. In a food chain, the energy flows from a .... consumer to a secondary consumer.
4. An area that provides food, water and shelter to all living organisms which live in it, is known as ....

(B) The following figure shows an energy flow through a food chain :

Producer → Animal (A) → Animal (B)

Which of the following is correct about this food chain ? ....

a. Animal (A) is a predator.
b. Animal (A) is a secondary consumer.
c. Animal (B) is a tertiary consumer.
d. Animal (B) is a predator.

Model Exam 2

on Concept (1.2)

Total mark
15

1 (A) Choose the correct answer : *(5 marks)*

1. The .... energy that comes from the Sun is important for the photosynthesis process.
   a. sound b. light c. kinetic d. potential
2. Plants with sticky seeds need .... to stick to disperse and grow in a new habitat.
   a. light energy from the Sun b. body of a living organism
   c. air d. water
3. Which one of the following living organisms can make its own food ? ....
   a. Grass. b. A worm. c. A bird. d. A rodent.
4. Waste materials produced from millipedes and worms are rich in ....
   a. oxygen gas. b. carbon dioxide gas.
   c. water. d. nutrients.

(B) Give a reason for the following :

Consumers depend on producers to get their energy.

....

....

2 (A) Write the scientific term of each of the following : *(5 marks)*

1. It is the primary source of energy for all living organisms on the Earth. (....................)
2. A group of living organisms that can produce their own food. (....................)
3. The animal that is eaten by another animal. (....................)
4. It is a model that shows how energy flows from one organism to another in an ecosystem. (....................)

(B) Correct the underlined words :

1. In any food chain, plants are considered as <u>consumers</u>. (....................)
2. If a frog eats an insect that feeds on plants, this means that the frog is a <u>primary</u> consumer. (....................)

3 **(A) Choose from column (B) what suits it in column (A) :** *(5 marks)*

(A)	(B)
1. Carbon dioxide gas 2. Oxygen gas 3. Water 4. Sunlight	a. without its energy, photosynthesis process cannot begin. b. it combines with oxygen inside the plant leaves to produce glucose sugar. c. it is produced from photosynthesis process. d. it is absorbed by plant roots from the soil. e. it combines with water inside the plant leaves to produce glucose sugar.

1. .... 2. .... 3. .... 4. ....

(B) What happens if ... ?

There is no sunlight reaches the Earth's surface.

....

....

Model Exam

on Concept (1.1)

Total mark

15

1 (A) Complete the following sentences : *(5 marks)*

1. Plants absorb .... and .... from the soil through their ....
2. There are three types of vessels in the human circulatory system which are arteries, ... and ....
3. Tree trunks and shrubs have .... stems.
4. Transport system in the plant consists of two types of vessels which are .... and ....

(B) Give a reason for the following :

Xylem in plant is a one-way vessel.

....

....

2 (A) Choose from column (B) what suits it in column (A) : *(5 marks)*

(A)	(B)
1. Coconut seeds	a. sticking to animal fur.
2. Maple seeds and dandelion seeds	b. floating on water.
	c. being eaten by animals.
3. Burr seeds	d. traveling by wind.
4. Tomato seeds and apple seeds	e. staying inside flowers without movement.

1. .... 2. .... 3. .... 4. ....

(B) What happens if ...?

We remove the flowers of a plant.

....

3 (A) Put (✓) or (✗) : *(5 marks)*

1. Humans, animals and plants need food and water to survive. ( )
2. All seeds need soil in its initial growth. ( )
3. There are tiny holes opening on the surface of stem that allow gases to pass through into the plant. ( )
4. Vines have climb stems. ( )

(B) Write the scientific term of each of the following :

1. It is found in the plant's leaves that gives them the green color and absorbs energy from the sunlight. (....................)
2. A substance that is produced from the plant during photosynthesis process and provides it with its needed energy. (....................)



Model Exam

on Concepts (1.1) & (1.2)

Total mark

15

1 **(A) Choose the correct answer :** *(5 marks)*

1. Winds play an important role in dispersing .... seeds.
   a. floating b. sticky c. big heavy d. small light
2. .... system in plants consists of tubes that water and nutrients move through it.
   a. Digestive b. Respiratory c. Transport d. Nervous
3. Any food chain starts with ....
   a. insects. b. fungi. c. plants. d. bacteria.
4. The kind of stems that extend underground are called .... stems.
   a. climb b. tuber c. runner d. wood

(B) What happens if ...?

All the primary consumers disappear from a certain food chain.

....

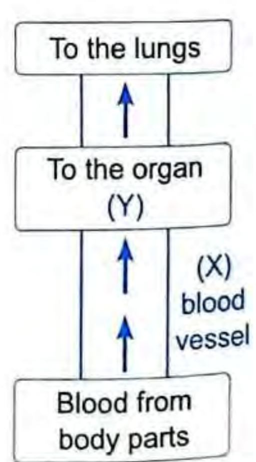
....

2 **(A) Put (✓) or (✗) :** *(5 marks)*

1. Photosynthesis process takes place in the plant's roots. ( )
2. The food web describes energy flow and feeding interactions between living organisms in an ecosystem. ( )
3. At the beginning of germinating some bean seeds, they can grow without soil or water. ( )
4. Birds eat insects as preys to get their energy. ( )

(B) The figure to the right represents a blood vessel, which answer represents (X) & (Y) :

	(X)	(Y)
a	Artery	The heart
b	Vein	The brain
c	Vein	The heart
d	Artery	The lungs

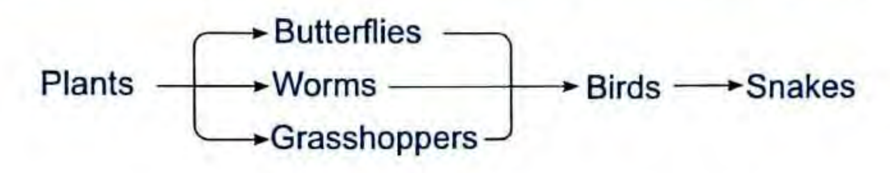




3 (A) Write the scientific term of each of the following : *(5 marks)*

1. The gas that is present in air and necessary for the formation of plant food. (....................)
2. Small structures in the plant's roots that increase the absorption of water and nutrients from the soil. (....................)
3. A group of living organisms that can live on decaying dead organisms. (....................)
4. Parts of the plant that are responsible for reproduction. (....................)

(B) Study the following food web, then choose the correct answer :



1. When .... disappear from this food web, birds will move away to search for food in another ecosystem.
   a. butterflies only
   b. worms only
   c. grasshoppers only
   d. primary consumers
2. Grasshoppers may die, when there is no ....
   a. birds.
   b. snakes.
   c. plants.
   d. butterflies.

Science

Primary **5**

Test 1

Total mark
....
15

Question 1

(5 marks)

A Choose the correct answer :

1 The system that moves blood in the human body is called .... system.

ⓐ digestive ⓑ respiratory ⓒ circulatory ⓓ nervous

2 Photosynthesis process produces ....

ⓐ glucose sugar in consumers. ⓑ glucose sugar in producers.

ⓒ water in consumers. ⓓ water in decomposers.

3 Stomata are present on plant's .... to allow air to pass through it.

ⓐ roots ⓑ stems ⓒ leaves ⓓ flowers

4 All the following living organisms are decomposers, except ....

ⓐ fungi. ⓑ bacteria. ⓒ slugs. ⓓ hyenas.

B Give a reason for :

Seeds of maple or dandelion plants can disperse through wind easily.

....

Question 2

(5 marks)

A Put (✔) or (✘) :

1 The plant can make its own food in the absence of water. ( )

2 Producers and consumers use carbon dioxide gas for making their food. ( )

3 During photosynthesis process, the plant makes sugars, starches, proteins and fats that help it to survive. ( )

4 Hawks cannot eat some types of food like plant leaves. ( )

B What happens if ... ?

All types of decomposers are absent from an ecosystem.

....

Question 3

(5 marks)

A Write the scientific term of each of the following :

1. It is a process through which the nutrients found in dead organisms bodies return back to the ecosystem. (..........................)
2. Tubes in the plant that transport food materials from the leaves to other parts of the plant. (..........................)
3. Parts of the plant that are responsible for reproduction. (..........................)

B Complete the following sentences :

1. There are many kinds of stems on plants like .... in vines and .... in potato.
2. Arteries carry oxygen and nutrients from the .... to all body parts, while .... in plant's stem carries water from the roots to the leaves.

Test 2

Total mark .... / 15

Question 1

(5 marks)

A Choose the correct answer :

1. A snake is a predator for mice, while snake is considered as a prey for ....
   (a) rabbit. (b) frog. (c) eagle. (d) deer.
2. Hydroponic system should be full of .... and ....
   (a) water – oil. (b) sunlight – water.
   (c) sand – water. (d) water – minerals.
3. In photosynthesis process, plant produces .... to get energy.
   (a) oxygen gas (b) sugar
   (c) carbon dioxide gas (d) water
4. Many insects are considered as ....
   (a) producers. (b) decomposers.
   (c) primary consumers. (d) secondary consumers.

B Give a reason for :

Scavengers must work on dead bodies before decomposers.

....

Question 2

(5 marks)

A Put (✔) or (✘) :

1. In a food chain, the energy transfers from eagles to mice. (   )
2. Chlorophyll helps the plant leaves to absorb sunlight to make photosynthesis process. (   )
3. All plants need the same way to disperse their seeds. (   )
4. Human circulatory system consists of the heart and the lungs. (   )

B What happens if ... ?

Plants can't get carbon dioxide gas from air.

....

Question 3

(5 marks)

A Write the scientific term of each of the following :

1. A group of living organisms that can produce their own food. (..........................)
2. Small structures in the plant's roots that increase the absorption of water and nutrients from the soil. (..........................)
3. The suitable ecosystem for plant-community ecologists to do their researches. (..........................)

B Complete the following sentences :

1. The presence of .... , ... and air is very important for plants to grow.
2. Living organisms include .... , consumers and ....

Answers of Test 1

Question 1

A 1 (c) 2 (b) 3 (c) 4 (d)

B Because they are light seeds.

Question 2

A 1 (✗)

2 (✗)

3 (✔)

4 (✔)

B Dead organisms will not be decomposed and their nutrients will not return back to the soil.

Question 3

A 1 Decomposition process.

2 Phloem.

3 Flowers.

B 1 climb stem – tubers

2 heart – xylem

Answers of Test 2

Question 1

A 1 ⓒ 2 ⓓ 3 ⓑ 4 ⓒ

B Because scavengers feed on dead bodies by breaking them into small pieces.

Question 2

A 1 (✗)

2 (✔)

3 (✗)

4 (✗)

B Plants can't make their own food during photosynthesis process.

Question 3

A 1 Producers.

2 Root hairs.

3 Prairie.

B 1 water – sunlight

2 producers – decomposers.

PRACTICE

Concept 1
Plant Needs



Remember Understand Apply Analyze

1 Choose the correct answer:

1. Plants use energy from sunlight to make their own food from water and carbon dioxide through a process called ....
   a. reproduction b. photosynthesis c. germination d. respiration
2. Plants use energy from .... to make their own food from water and carbon dioxide.
   a. batteries b. fire c. sunlight d. wind
3. Duckweeds are tiny, floating plants found on the top of lakes and ponds. How do they get the energy that they use as food?
   a. They use photosynthesis to change light energy into food.
   b. They are so small that they can absorb the energy they need from water.
   c. They are parasites that attach to fish to absorb the energy they need.
   d. They eat other plants.
4. Which of the following is taken in from the atmosphere through leaves to make food for a plant?
   a. Carbon dioxide. b. Glucose. c. Oxygen. d. Hydrogen.
5. When a plant stem is placed in red-colored water, the plant color ....
   a. turns red b. turns yellow c. doesn't change d. turns blue
6. Xylem vessels transport ....
   a. water b. minerals from the soil
   c. sugars d. (a) and (b)
7. Which statement is not an accurate representation of plant activity?
   a. Photosynthesis occurs in tiny structures called chloroplasts.
   b. Sugars are moved to leaves from roots through the stem.
   c. Roots carry water and nutrients from the soil to the rest of the plant.
   d. Plants use sunlight, nutrients from the soil, water, and air to make the food they need.
8. Which of the following represents photosynthesis?
   a. Carbon dioxide + sunlight + water → oxygen + sugar
   b. Carbon dioxide + sugar + water → oxygen + sunlight
   c. Oxygen + sunlight + water → carbon dioxide + sugar
   d. Carbon dioxide + oxygen + water → light + sugar



9. Photosynthesis occurs in the chloroplasts of plant cells. Which gas is released during this process?
   a. Nitrogen. b. Hydrogen. c. Oxygen. d. Carbon dioxide.

10. Tamer planted a flowering plant in a pot. He used rich soil and watered it regularly. Then he placed the plant into a plastic bag and hid it for a week. He water the plant daily, but the plant did not survive.
    The plant did not survive because it was not provided with .... which are the basic needs of the plant.
    a. air and light b. water and fertilizer
    c. pollen and seeds d. warmth and mulch

11. A long, dry season in a rainforest produced below-average rainfall, and some plant populations declined afterward. Why did the change in weather patterns affect plant growth in the region?
    a. The dry season caused the temperature in the area to drop.
    b. The dry season caused the soil to become less nutrient-rich.
    c. The dry season reduced the amount of water in the ground.
    d. The dry season caused less sunlight to reach the ground.

12. .... is/are the green pigment in chloroplasts that captures the energy in sunlight.
    a. Chlorophyll b. Stomata c. Phloem d. Xylem

13. The .... is the most photosynthetic part of a plant.
    a. trunk b. flower c. stem d. leaf

14. The .... helps to support the plant. It holds the leaves up to get sunlight to make food.
    a. leaves b. stem c. seeds d. flowers

15. .... allow(s) gases exchange between a leaf and the atmosphere.
    a. Roots b. Phloem c. Stomata d. Xylem

16. Root hairs are important for the plant, ...
    a. as they decrease the surface area of the roots to keep in water
    b. as they increase the surface area of the roots to decrease absorption
    c. as they increase the surface area of the roots to increase absorption
    d. No correct answer.

17. .... from the sun is changed into .... during photosynthesis.
    a. Chemical energy - light energy b. Light energy - chemical energy
    c. Thermal energy - light energy d. Electrical energy - chemical energy



18. Plants and humans depend on each other, because ....
    a. plants use the oxygen humans produce
    b. plants need someone to water them
    c. plants use the carbon dioxide humans release and turn it into oxygen
    d. plants use the glucose humans give them
19. Which part of the plant transports food from the leaves to other parts of the plant?
    a. Xylem. b. Rootlets. c. Chloroplasts. d. Phloem.
20. Which of the following indicates the pathway of water through a plant?
    a. Root hairs → Xylem → All plant's parts
    b. All plant's parts → Root hairs → Xylem
    c. Xylem → All plant's parts → Root hairs
    d. No correct answer.
21. Which part of the plant plays a similar role in keeping the plant alive to the circulatory system in humans?
    a. The stem. b. Roots. c. Leaves. d. The vascular system.
22. All of the following are the main parts of the human circulatory system, except ....
    a. the heart b. blood vessels c. the brain d. blood
23. An artery ....
    a. pumps blood to the heart
    b. pumps blood to and from the heart
    c. carries blood away from the heart
    d. carries blood low in oxygen
24. All of the following are similarities between the circulatory system in humans and vascular systems in plants, except ....
    a. both are transport systems
    b. both transport water, nutrients, and dissolved substances
    c. both don't have vessels that transport substances in specific directions
    d. All the previous answers
25. Seed dispersion helps the seed ....
    a. not germinate
    b. to move to the same place and grow
    c. to move further away from the parent plant and grow
    d. to compete with the parent plant for minerals in the soil
26. Seeds that are dispersed by humans and animals ....
    a. can float on water
    b. have bad taste
    c. have hooks or stiff hairs
    d. have wing-like structures



2 Complete the following sentences using words between brackets:

1. .... is the main source of energy for the plant. (The sun – Air)
2. .... is not considered a plant's basic need. (Air – Soil)
3. Plants use .... which is produced from the respiration of other living organisms. (oxygen – carbon dioxide)
4. One of the soil replacements is .... (greenhouse – hydroponic system)
5. The plant stores chemical energy in the form of .... (sugars – oxygen)
6. Photosynthesis occurs in the .... in the plant leaves. (chloroplast – stomata)
7. .... gives the plant its green color. (Stomata – Chlorophyll)
8. Flowers sometimes grow from .... on the stem. (buds – root hairs)
9. Vines extend their stem to hand on other trees or supporting objects, so they have a .... stem. (tuber – climber)
10. Strawberry has a .... stem. (runner – climber)
11. Stomata allow air rich in .... to be released from leaves. (oxygen – carbon dioxide)
12. The plant vascular bundle is like the .... in the human. (blood vessels – muscles)
13. .... has one way similar to the specific direction of arteries and veins. (Xylem – Phloem)
14. .... transports sugars, starch, and fats produced in the leaves to all the plant parts. (Xylem – Phloem)
15. .... transports substances upward only in the plant. (Xylem – Phloem)
16. .... pumps blood in the human body. (Heart – Kidneys)
17. Veins carry blood .... in oxygen. (rich – low)
18. .... transport blood to the heart. (Arteries – Veins)
19. Seeds with a sweet taste, like seeds on the strawberry, are best dispersed by .... (wind – being eaten)
20. Fluffy seeds, like kapok tree seeds, can be dispersed by .... (wind – being eaten)

3 Put (✓) or (✗) in front of each sentence:

1. Suitable temperature is one of the plant's basic needs. (   )
2. Seeds don't need water to germinate. (   )
3. Plants can thrive without soil. (   )
4. Animals can make their own food by themselves like plants. (   )

5. Both plants and humans need gases to survive. ( )
6. Stomata allow water to enter leaves to make photosynthesis. ( )
7. Plants produce oxygen, which other living organisms use to breathe. ( )
8. Sunlight is the main source of energy for the plant to make photosynthesis. ( )
9. Sunlight allows plants to grow weak, with pale leaves, and short stems. ( )
10. Stomata in the plant leaves act as the respiratory system in humans. ( )
11. If the plant has no chlorophyll, it can't make its own food. ( )
12. Root hairs increase the amount of water absorbed by roots. ( )
13. Sunflowers have runner stems. ( )
14. Tuber stem grows up on the surface of soil like sweet potatoes. ( )
15. Water and minerals move from up to down through the xylem vessels. ( )
16. Phloem vessels transport the food produced from leaves to all the plant parts. ( )
17. During photosynthesis process, chemical energy is transformed into light energy. ( )
18. Veins carry blood rich in carbon dioxide and low in oxygen to the heart. ( )
19. Both the plant vascular system and the human circulatory system are transport systems. ( )
20. Burdock seed has hooks that enable it to disperse by wind blowing. ( )
21. Flowers play an important role in plant survival and continuity. ( )

4 Write the scientific term for each of the following:

1. The source of energy for the plant to make photosynthesis. (..................)
2. The process that takes place inside the green parts of the plant (leaves) to make their own food to grow and survive. (..................)
3. A replacement system for the soil that provides the plant with nutrients and the essential elements. (..................)
4. The green pigment in the plant that soaks up sunlight. (..................)
5. Plant structures that allow gases to get in and out of leaves. (..................)
6. Plant structures that anchor the plant in the soil. (..................)
7. The stem type of strawberry. (..................)
8. Sweet potatoes are like potatoes; they have the same type of stem. (..................)
9. Blood vessels that transport the blood from the heart to all the body parts. (..................)

10. A one-way plant vessel similar to the specific direction of arteries and veins. (..............................)
11. The system which is responsible for transporting oxygen and nutrients throughout the body. (..............................)
12. An organ that pumps blood throughout the body. (..............................)
13. A miniature plant waiting to grow. (..............................)
14. An organ in the plant that is responsible for reproduction. (..............................)
15. A way that is used to disperse fluffy seeds like kapok tree seeds. (..............................)

5 Look at the following figures, then answer:

(A) Write the letter that suits each sentence.

a
b
c
d
e

1. Photosynthesis process takes place in (................)
2. (................) absorb water and nutrients.
3. (................) captures sunlight.
4. (................) is the reproductive plant structure.
5. (................) gives the plant support.

(B) Your observation after one week is ....,

Plant A

Plant B

1. Plant (A) dies, while Plant (B) lives.
2. Plant (A) lives, Plant (B) dies.
3. Plant (A) is stronger and grows healthy than Plant (B).

A plant in the sunlight

A plant kept inside a closed box

(C) Light is a plant's basic need, so plants grow toward it.

Draw a circle for each one, that represents the sun that suits its growth direction.

(A) (B) (C)

(D) 1. Write down the color of each flower after leaving them in the colored water for a few days.

a. ....

b. ....

c. ....

a b c

2. We can conclude that the .... (xylem – phloem) vessels transport water .... (upward – in all directions)

6 Answer the following questions:

(A) List what plant needs to make photosynthesis.

1. .... 2. .... 3. ....

(B) Soil is not a plant's basic need, but plants still need minerals and essential elements that are provided by the soil.

- How could the soil be replaced?

....

(C) Write the common basic needs between plants and humans.

....

(D) Plants and humans both need gases to survive.

....

- Explain how different the taken-in gases are.

....

(E) Plants have a green color, this green structure plays an important role in photosynthesis.

- This green structure is called

....

- Its function:

....

(F) Xylem plays an important role in obtaining life-sustaining elements.

- What will happen to the plant if there are no xylem vessels?

....

(G) How could the flowers and seeds be important for the plant's survival?

....

(H) Arteries and veins both have specific functions. Compare them concerning the type of gas that each one carries.

....

1 Choose the correct answer:

1. All of the following are from the plant parts, except ....
   a. the flower b. leaves c. roots d. veins
2. Plant absorbs .... from the soil to make their own food.
   a. oxygen b. minerals c. water d. (b) and (c)
3. Veins carry blood low in ....
   a. oxygen b. carbon dioxide
   c. water d. All the previous answers
4. Vines have a/an .... stem.
   a. runner b. climber c. woody d. upright
5. Flowers are important for the plant, as they ....
   a. produce seeds b. are the reproductive organs
   c. absorb water d. (a) and (b)

2 (A) Complete the following sentences using words between brackets:

1. .... anchors the plant in the soil. (The root – The stem)
2. Arteries carry blood rich in .... (oxygen – carbon dioxide)
3. A plant stem grows .... the source of light. (away from – toward)

(B) Put (✓) or (✗) in front of each sentence:

1. Plants use the sugars they make to grow and heal. (   )
2. The blood direction within the veins is similar to the water flow within the plant's xylem vessels. (   )

3 (A) Write the scientific term for each of the following:

1. The process where plants can make their own food by themselves. (............................)
2. A replacement system for plants that provides them with nutrients instead of the soil. (............................)
3. The stem type of shrubs. (............................)

(B) Answer the following question:

- Plants depend on humans' respiration waste products, while humans depend on plant waste products from photosynthesis. Explain.

....

Assess Your Progress ★★★★★

< 50%	50 : 64%	65 : 84%	85 : 100%
Study again	Practice more	Solve more exams	Well done!



Concept 2
Energy Flow in Ecosystems

Remember Understand Apply Analyze

1 Choose the correct answer:

1. All .... need a source of energy.
   a. rocks b. minerals c. oceans d. organisms
2. During photosynthesis, radiant energy flows from the .... to the plant.
   a. nutrients b. Moon c. Sun d. water
3. An ecosystem consists of ....
   a. living things only b. non-living things only
   c. living and non-living things d. No correct answer.
4. Plants are .... that get energy from the Sun to make their own food.
   a. decomposers b. consumers c. producers d. non-living
5. Food chains include producers, consumers, and decomposers, which of the following is an example of the three?
   a. Seeds, Mouse, Owl b. Fly, Spider, Grasshopper
   c. Nuts, Squirrel, Fungus d. Leaf, Eagle, Robin
6. Slug is an example of a ....
   a. producer b. scavenger
   c. decomposer d. No correct answer.
7. Which organism gets energy from another organism?
   a. A cactus. b. An acacia tree. c. A rabbit. d. A flower.
8. .... carry out the processes of breaking down or decaying dead organisms.
   a. Producers b. Consumers c. Decomposers d. All the previous answers.
9. Energy in the form of food flows from one organism to another. Which is the correct direction of this energy flow?
   a. From producers to consumers.
   b. There is no energy flow between producers and consumers.
   c. Back and forth between consumers and producers.
   d. From consumers to producers.
10. Which of the following represents "prey-predator" relationship? ....
    a. Grass and Snake b. Snake and Mouse
    c. Owl and Green plant d. All the previous answers.

11. A grasshopper eats grass and seeds, the mouse eats the grasshopper, and the owl eats the mouse. This is an example of a/an ....
    a. carnivore b. insectivore c. food web d. food chain
12. A food web shows the ....
    a. non-living features in the environment
    b. feeding relationships between organisms
    c. way that heat is trapped in an environment
    d. substances that contaminate the atmosphere
13. Animals are .... as they must eat other living things to get energy.
    a. producers b. consumers
    c. decomposers d. All the previous answers.
14. What are the complex interactions of producers, consumers, and predators called?
    a. A niche b. A habitat c. A food web d. A food chain
15. When the decomposers disappear from a habitat, ...
    a. they produce their own food using radiant energy
    b. they move to another ecosystem
    c. they will recycle the ecosystems environment
    d. the dead bodies will cover this habitat
16. Identify the correct order of this food chain.
    a. Hawk → Snake → Mouse → Plant
    b. Mouse → Snake → Hawk → Plant
    c. Plant → Mouse → Snake → Hawk
    d. Plant → Hawk → Mouse → Snake
17. In any food chain, primary consumers eat ....
    a. plants and other animals b. plants
    c. large meat-eating consumers d. All the previous answers.
18. .... is a community of living things, non-living things, and the environment.
    a. Food chain b. Ecosystem c. Food web d. No correct answer.
19. Wolves prefer to hunt deer for food. If the deer population in an area declines because of hunting by humans, the wolves would most likely ....
    a. find an area with more deer b. start to attack human hunters
    c. become endangered and then extinct d. choose another food to eat
20. All the following are ecosystems except " .... ".
    a. Ocean b. Desert c. Space d. Rainforest



2 Complete the following sentences using words between brackets:

1. The primary source of energy is the .... (green plants – Sun)
2. .... contains biotic and abiotic factors. (Ecosystem – Sunlight)
3. The consumer that feeds on an animal that feeds on producers is a .... consumer. (primary – secondary)
4. Green plants are classified as .... (producers – decomposers)
5. The consumer that is eaten by another animal is called ....(a predator – prey)
6. Organisms that can make their own food are .... (decomposers – producers)
7. The consumer that eats another animal is called a .... (predator – prey)
8. .... is a model that shows a linear set of feeding relationships and energy movement among living things and energy movement. (Food web – Food chain)
9. The .... is a primary consumer. (mouse – hawk)
10. During photosynthesis process, radiant energy changes into .... energy. (heat – chemical)
11. Any food chain begins with a .... (producer – decomposer)
12. .... are organisms that help in the animal's decomposition process. (Producers – Decomposers)
13. Any food chain begins with producers and ends with .... (producers – decomposers)

3 Put (✓) or (✗) in front of each sentence:

1. The energy flows in the food chain from consumers to producers. (   )
2. Food web is a model that shows a linear set of feeding relationships and energy flow among living organisms. (   )
3. Long food chains consist of more than 1 consumer. (   )
4. Scavengers consume the remains of dead animals and plants. (   )
5. Without decomposers, the Earth would be full of dead bodies. (   )
6. Composition, is the nature's recycling factory. (   )
7. Food chains overlap within the ecosystem forming food webs. (   )
8. Hyenas, snails, slugs and earthworms are examples of decomposers. (   )
9. Producers are the first-link in the food chain while consumers are the final-link. (   )
10. Energy does not flow between 2 consumers at the beginning of the food chain. (   )



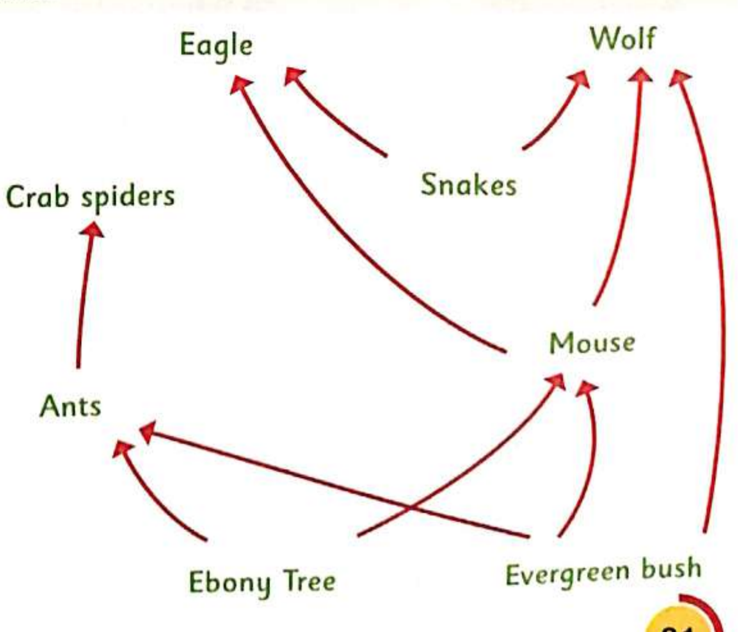


4 Write the scientific term for each of the following:

1. It is a fundamental process to Earth, where plants absorb Sun's energy through their leaves to make their own food by converting water and carbon dioxide from the air into glucose. (..............................)
2. It is a model that shows a linear set of feeding relationships and energy movement among living things within specific species. (..............................)
3. They are the organisms that are able to produce their own food. (..............................)
4. They are the animals that eat plants. (..............................)
5. They are the animals that eat primary consumers. (..............................)
6. They are the large meat-eating animals that eat secondary consumers.(..............................)
7. They are the animals that eat other animals. (..............................)
8. They are the animals eaten by other animals. (..............................)
9. It is the final-link in a food chain. (..............................)
10. It is a model that shows many different feeding relationships among living things. (..............................)
11. They are the animals that eat dead animals. (..............................)
12. They are the nature's recycling factory. (..............................)
13. It is the source of radiant energy to the plants. (..............................)
14. It represents the energy flow between organisms in an ecosystem. (..............................)

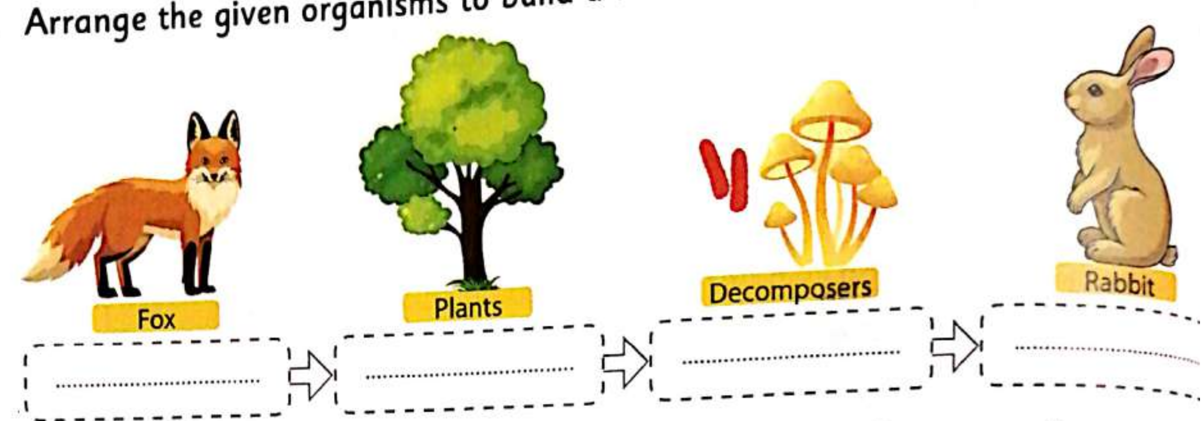
5 Answer the following questions:

1. **Which of the following is a secondary consumer?**
   a. Ebony tree
   b. Snakes
   c. Wolf
   d. Ants

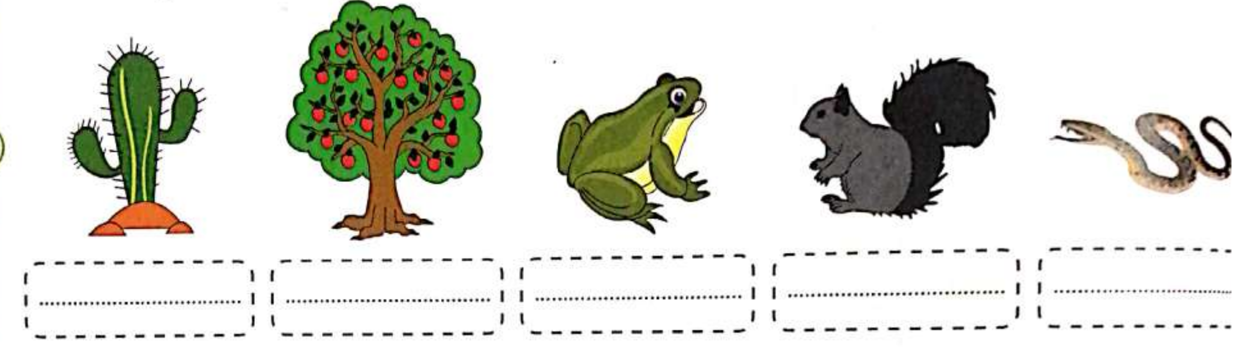




2. Arrange the given organisms to build a food chain:

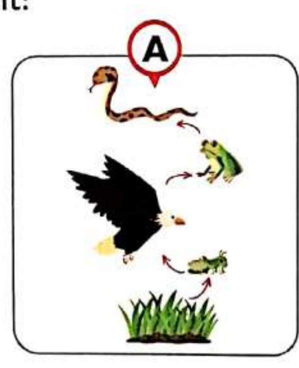


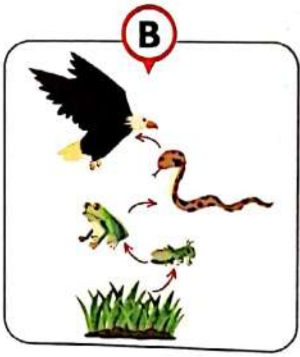
3. Classify the following organisms into "Producers and Consumers":

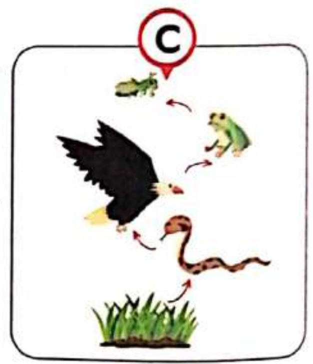


4. Look at the following ecosystem, then circle the correct food chain that represen this environment:



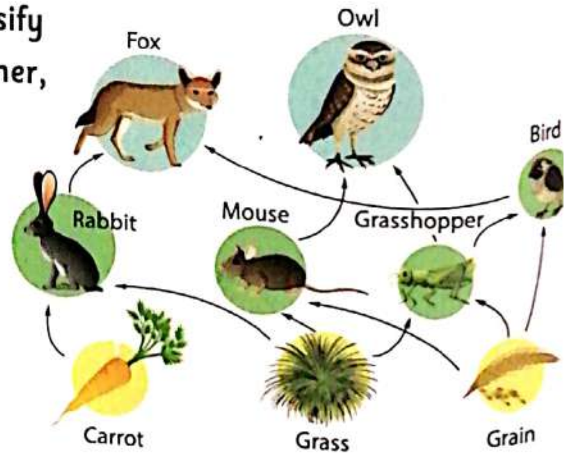






5. Look at the opposite food web, then classify each organism into "Producer, 1ry Consumer, 2ry Consumer" in the given table:

Producer	
1ry Consumer	
2ry Consumer	



1 Choose the correct answer:

1. Which of the following organisms comes at the end of a food chain?
   a. Decomposers b. Producers c. Consumers d. No correct answer
2. Which of the following represents a food chain?
   a. Hawk → Crocodile → Mouse → Grasshopper
   b. Mouse → Rabbit → Cactus → Lattice
   c. Plant → Mouse → Snake → Hawk
   d. Plant → Hawk → Mouse → Snake
3. .... are the organisms that are able to produce their own food.
   a. Decomposers b. Producers c. Consumers d. Insectivores
4. All organisms need ....
   a. predators b. energy c. decomposers d. No correct answer
5. A food web shows the ....
   a. non-living features in the environment
   b. feeding relationships between organisms
   c. way that heat is trapped in an environment
   d. substances that contaminate the atmosphere

2 Write the scientific term for each of the following:

1. They are the organisms that cannot produce their own food, but they must eat other living things to get energy. (............................)
2. It is a community of living things, non-living things, and the environment. (............................)
3. They are the organisms that carry out the processes of decomposition by breaking down or decaying dead organisms. (............................)
4. It is the first-link in a food chain. (............................)
5. They are the animals that eat plants only. (............................)

3 Look at the opposite figure, then answer:

1. This diagram represents a ....
   (food web – food chain)
2. The producer is the ....
3. The primary consumer is the ....
4. The secondary consumer is the ....
5. The tertiary consumer is the ....

FOX
EAGLE
BIRD
GROUND SQUIRREL
GRASSHOPPER
PLANTS

Unit 1

Concept 1 Plant Needs

Answer Guide: P. 71

Assessment 1

(Total mark) 20

1 Choose the correct answer:

1. Which statement is not an accurate representation of plant activity?
   a. Photosynthesis occurs in tiny structures called chloroplasts.
   b. Sugars are moved to the leaves from the roots through the stem.
   c. Roots carry water and nutrients from the soil to the rest of the plant.
   d. Plants use sunlight, nutrients from the soil, water, and air to make the food they need.
2. .... allow(s) carbon dioxide to enter the leaves.
   a. Stomata
   b. Chloroplasts
   c. Chlorophyll
   d. Roots
3. Potato and sweet potatoes can grow underground, so they are ....
   a. tuber stems
   b. climbing stems
   c. runners
   d. shrubs
4. A .... is actually a miniature plant waiting to grow.
   a. seed
   b. leaf
   c. rock
   d. flower
5. Wing-shaped seeds can disperse by .... easily.
   a. air
   b. sunlight
   c. water
   d. animals

2 Complete the following sentences using words between brackets:

1. .... absorbs light energy to help the plant make its food. (Chloroplast – Root)
2. Xylem helps the plant transport water and minerals from the roots .... (upwards – in all directions)
3. .... carry blood rich in oxygen. (Arteries – Veins)
4. Plants absorb .... from the air to make their own food. (oxygen – carbon dioxide)
5. Arteries carry blood from the heart and the .... to all the body parts. (lungs – brain)



3 (A) Put (✓) or (X) in front of each sentence:

1. The plant grows well and healthy with green leaves in the absence of light. (   )
2. The blood flows in all directions within the blood vessels. (   )
3. Plants and animals can make their own food by themselves. (   )

(B) Write the scientific term for each of the following:

1. The process by which plants make glucose that helps them grow and thrive.

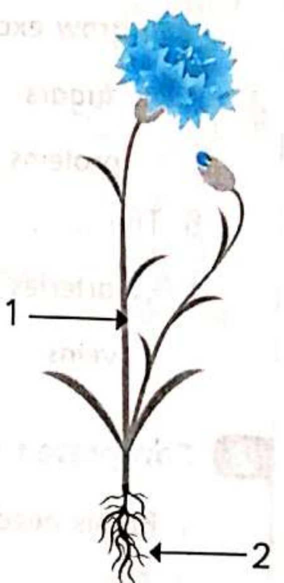
(..)

2. The system that transports water, minerals, and sugars throughout the plant body.

(..)

4 Answer the following questions:

1. **Look at the plant, then answer:**

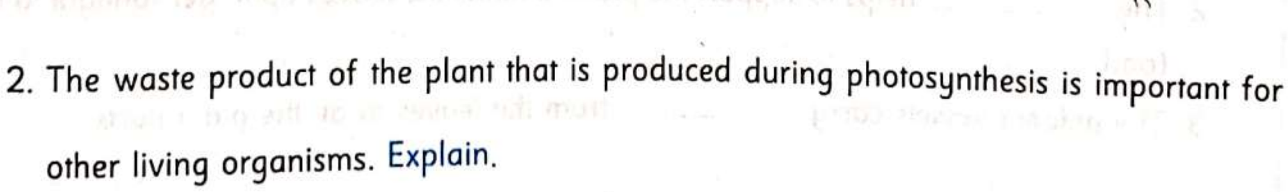


a. The function of number (1) is

....

b. The function of number (2) is

....



2. The waste product of the plant that is produced during photosynthesis is important for other living organisms. Explain.

....

Assessment 2

(Total mark) 20

Answer Guide: P. 71

1 Choose the correct answer:

1. During photosynthesis, plants can convert .... energy to .... energy.
   a. light, chemical
   b. chemical, light
   c. light, thermal
   d. chemical, thermal
2. Roots absorb .... and .... from the soil.
   a. minerals
   b. carbon dioxide
   c. water
   d. Both (a) and (c)
3. The plant can reproduce and survive by having ....
   a. flowers
   b. seeds
   c. air
   d. Both (a) and (b)
4. All the following are among the products of photosynthesis that are used by the plants to grow except ....
   a. sugars
   b. fats
   c. proteins
   d. oxygen
5. The .... pump(s) blood throughout the body through a closed system of tubes.
   a. arteries
   b. heart
   c. veins
   d. phloem

2 Complete the following sentences using words between brackets:

1. Plants need .... to grow. (shelter – sunlight)
2. The .... helps to support the plant. It holds the leaves up to get sunlight to make food. (stem – flower)
3. The phloem vessels carry .... from the leaves to all the plant parts. (water – sugars)
4. .... allow(s) air to move in and out the leaves. (Stomata – Phloem)
5. A seed that is light and has wing-shaped structure can be dispersed easily by .... (air – water)

3 (A) Put (✓) or (✗) in front of each sentence:

1. Plants make their own food and use the energy which they have got from the food to grow. ( )
2. Seeds can germinate without soil. ( )
3. Both plants and humans need gases to survive. ( )

(B) Write the scientific term for each of the following:

1. A blood vessel that carries blood rich in carbon dioxide and low in oxygen. (..............................)
2. A plant part that anchors it in the soil. (..............................)

4 Answer the following questions:

1. This figure represents the .... system.
   a. Arteries transport blood from the .... to ....
   b. Veins transport blood from .... to the ....

2. Plant roots have small structures called "root hairs." What is their function?

....

3. Plant leaves have green color. Why?

....



Concept 2 Energy Flow in Ecosystems

Answer Guide: P. 71

Assessment 1

(Total mark) 20

1 Choose the correct answer:

1. .... are the organisms that are able to produce their own food.
   a. Consumers b. Decomposers c. Producers d. No correct answer.
2. Fungi and Bacteria are called ....
   a. consumers b. decomposers c. producers d. scavengers
3. All the following are types of ecosystem except ....
   a. ocean b. sun c. rainforest d. tundra
4. The eagle in a food chain is a predator, as it obtains its energy by ....
   a. eating decomposers b. eating consumers
   c. making its own food d. eating producers
5. Which of the following is the proper order of a short food chain?
   a. Producers ⟶ Decomposers.
   b. Consumers ⟶ Producers ⟶ Consumers.
   c. Producers ⟶ Consumers ⟶ Decomposers.
   d. Consumers ⟶ Producers ⟶ Decomposers.

2 Put (✓) or (✗) in front of each sentence:

1. The consumer eaten by another animal is called a predator. ( )
2. In the presence of decomposers, the Earth would be full of dead bodies. ( )
3. Energy in the form of food flows from the producers to the consumers. ( )
4. All living things are a part of the food chain. ( )
5. Long food chains consist of only one consumer. ( )

3 Write the scientific term for each of the following:

1. They are the organisms that cannot produce their own food, but they must eat other living things to get energy. (..................................)
2. They are the nature's recycling factories. (..................................)
3. The model that shows many different feeding relationships among living things. (..................................)
4. They are the animals that eat dead animals. (..................................)
5. They are the organisms that are able to produce their own food. (..................................)

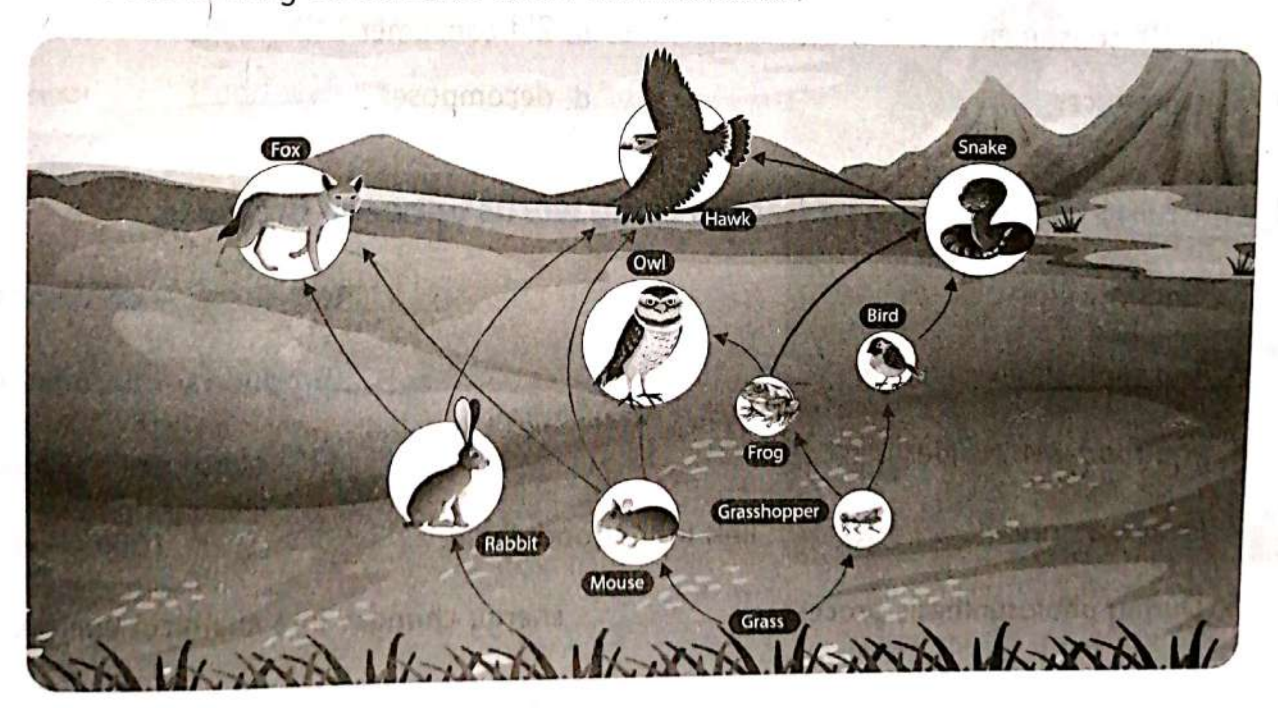
4 Look at the following figure, then answer:

(A) This figure represents a ....

(food web - food chain)

(B) Classify the following:

1. The producer(s) is/are the ....
2. The first consumer(s) is/are the ....
3. The second consumer(s) is/are the ....
4. The tertiary consumer(s) is/are the ....



Assessment 2

(Total mark) 20

Answer Guide: P. 71

1 Choose the correct answer:

1. .... is/are the source(s) of radiant energy to the plants.
   a. Producers b. Sunlight c. Decomposers d. No correct answer.
2. All .... need a source of energy.
   a. minerals b. oceans c. organisms d. mountains
3. When the decomposers disappear from a habitat ....
   a. they produce their own food using radiant energy
   b. they move to another ecosystem
   c. they recycle the environment of the ecosystem
   d. the dead bodies will cover this habitat
4. All the following are scavengers except ....
   a. vultures b. hyenas
   c. bacteria d. houseflies
5. A banana tree is a ....
   a. 1^{ry} consumer b. 2^{ry} consumer
   c. producer d. decomposer

2 Complete the following sentences using words between brackets:

1. Fungi are classified as .... (producers – decomposers)
2. Any food chain ends with .... (producers – decomposers)
3. In a food web, spider is a .... (1^{ry} consumer – producer)
4. Producers are the .... link in the food chain. (first – second)
5. During photosynthesis process, ... energy changes into chemical energy. (electric – radiant)

3 Match from column (B) what suits in column (A):

(A)	(B)
1. It is the final link in a food chain.	a. Prey
2. The community of living and non-living things is called the	b. Decomposers
3. .... are the animals that eat primary consumers.	c. Primary consumer
4. If a grasshopper eats the plant, then the grasshopper is a	d. Secondary consumer
5. In a food relationship between a fox and a rabbit, the rabbit is the	e. Ecosystem

1. .... 2. .... 3. .... 4. .... 5. ....

4 Look at the opposite figure, then answer:



(A) This figure represents a ....

(food web - food chain)

(B) Classify the following:

1. The eagle is a ....
2. The bird is a ....
3. The snail is a ....
4. The sunflower is a ....

Model (1)



1 (A) Choose the correct answer:

1. .... carry/carries blood from the heart to all the body parts.
   a) Arteries b) Veins c) Lungs d) Phloem
2. All the following are ecosystems, except ....
   a) desert b) tundra c) rainforest d) space
3. All the following are from the plant basic needs except ....
   a) water b) air c) soil d) sunlight
4. Identify the correct order of this food chain ....
   a) Owl → Frog → Grasshopper → Grass
   b) Frog → Owl → Grass → Grasshopper
   c) Grass → Grasshopper → Owl → Frog
   d) Grass → Grasshopper → Frog → Owl

(B) Plants are very important for other living organisms. Explain.

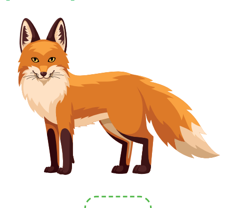
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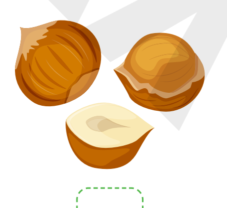
2 (A) Complete the following sentences, using words between brackets:

1. Veins carry blood rich in .... **(oxygen – carbon dioxide)**
2. Plants are .... that get energy from the sunlight to make their own food. **(decomposers – producers)**
3. .... transports the food of the plant from the leaves to all the parts of the plant. **(Xylem – Phloem)**
4. The consumer that feeds on an animal which in turn feeds on producers is called a .... consumer. **(primary – secondary)**

(B) Arrange the following food chain (1 - 3):







3 (A) Put (✓) or (✗) in front of each sentence:

1. Energy does not flow between two consumers at the beginning of a food chain. (.......)
2. Soil is among the basic needs of a plant. (.......)
3. Seeds with good taste can be eaten and dispersed by animals. (.......)
4. Rabbit and snake, is a "Prey-Predator" relationship. (.......)

(B) Plants' roots play a very important role for the plants' survival. Explain.

....

Model (2)



1 (A) Choose the correct answer:

1. The .... is/are the reproductive part(s) of the plant.
   a) flower b) stem c) leaves d) roots
2. All of the following are from the components of the human circulatory system except ....
   a) heart b) veins c) arteries d) phloem
3. An ecosystem consists of ....
   a) living organisms only b) non-living things only
   c) living organisms and non-living things d) No correct answer
4. Plants are .... that get energy from the Sun to make their own food.
   a) decomposers b) consumers c) producers d) non-living

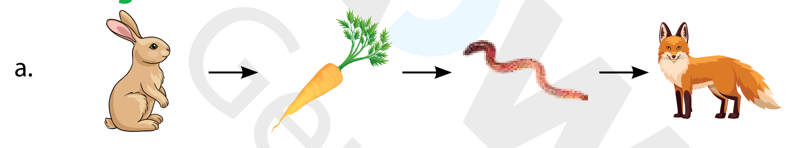
(B) What will happen if a plant is left in a dark room for several days?

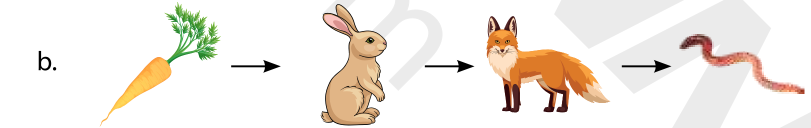
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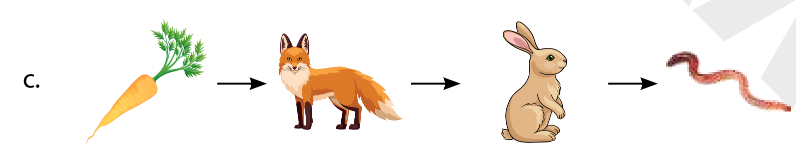
2 (A) Put (✓) or (✗) in front of each sentence:

1. All organisms need energy to survive and grow. (........)
2. Xylem vessels transport water and minerals in all directions. (........)
3. The predator is the consumer eaten by another consumer. (........)
4. The plant absorbs carbon dioxide from the air to make its own food. (........)

(B) Which of the following is the correct order for the food chain?

a. 

b. 

c. 

3 (A) Complete the following sentences, using words between brackets:

1. Plants produce .... during photosynthesis that helps them grow, heal and reproduce. **(oxygen – glucose)**
2. .... consume the remains of dead animals and plants. **(Consumers – Decomposers)**
3. In longer food chains, ... are classified into primary, secondary and tertiary. **(producers – consumers)**
4. The .... captures sunlight to help the plant do photosynthesis. **(chlorophyll – flower)**

(B) Xylem plays an important role in obtaining life-sustaining elements.
What will happen to the plant if there are no xylem vessels?

....

Model (3)

15 Marks

1 (A) Choose the correct answer:

1. Plants use energy from .... to make their own food from water and carbon dioxide.
   a) batteries b) fire c) sunlight d) wind
2. When a plant stem is placed in red-colored water, the plant color ....
   a) turns red b) turns yellow c) doesn't change d) turns blue
3. Photosynthesis occurs in the chloroplasts of plant cells. Which gas is released during this process?
   a) Nitrogen b) Hydrogen c) Oxygen d) Carbon dioxide
4. A very short food chain consists of ....
   a) a producer, 2 consumers and decomposers
   b) 2 producers, 1 consumer and decomposers
   c) a producer and 2 consumers
   d) a producer, a consumer and decomposers

(B) Which of the following is a secondary consumer?

a. Ebony tree
b. Snakes
c. Wolf
d. Ants

Eagle
Wolf
Crab spiders
Snakes
Mouse
Ants
Ebony Tree
Evergreen bush

2 (A) Put (✓) or (✗) in front of each sentence:

1. Plants can thrive without soil. (.........)
2. Stomata allow air to enter leaves to make photosynthesis. (.........)
3. Grasshopper is a primary consumer. (.........)
4. Producers are the first-link in the food chain while consumers are the final-link. (.........)

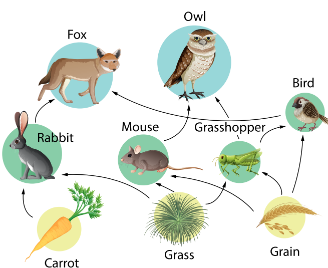
(B) Mention the common basic needs between plants and humans.

....

3 (A) Complete the following sentences, using words between brackets:

1. The plant stores chemical energy in the form of .... (**sugars – oxygen**)
2. Fluffy seeds, like kapok tree seeds, can be dispersed by .... (**wind– being eaten**)
3. The consumer that eats another animal is called a .... (**predator – prey**)
4. During photosynthesis process, radiant energy changes into .... energy. (**heat – chemical**)

(B) Look at the opposite food web,then classify each organism into " producer, 1st consumer, 2nd consumer" in the given table:



Producers	
1ry Consumers	
2 ry Consumers	

Answers

Model (1)

15 Marks

1 (A) Choose the correct answer:

1. .... carry/carries blood from the heart to all the body parts.
   a) Arteries b) Veins c) Lungs d) Phloem
2. All the following are ecosystems, except ....
   a) desert b) tundra c) rainforest d) space
3. All the following are from the plant basic needs except ....
   a) water b) air c) soil d) sunlight
4. Identify the correct order of this food chain ....
   a) Owl → Frog → Grasshopper → Grass
   b) Frog → Owl → Grass → Grasshopper
   c) Grass → Grasshopper → Owl → Frog
   d) Grass → Grasshopper → Frog → Owl

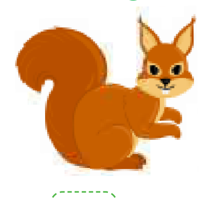
(B) Plants are very important for other living organisms. Explain.

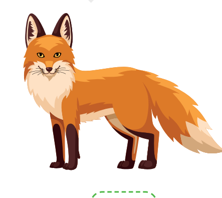
Plants release oxygen that helps living organisms in breathing.

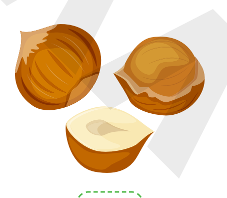
2 (A) Complete the following sentences, using words between brackets:

1. Veins carry blood rich in .... **(oxygen – carbon dioxide)**
2. Plants are .... that get energy from the sunlight to make their own food. **(decomposers – producers)**
3. .... transports the food of the plant from the leaves to all the parts of the plant. **(Xylem – Phloem)**
4. The consumer that feeds on an animal which in turn feeds on producers is called a .... consumer. **(primary – secondary)**

(B) Arrange the following food chain (1 - 3):


2


3


1

3 (A) Put (✓) or (✗) in front of each sentence:

1. Energy does not flow between two consumers at the beginning of a food chain. (✓)
2. Soil is among the basic needs of a plant. (✗)
3. Seeds with good taste can be eaten and dispersed by animals. (✓)
4. Rabbit and snake, is a "Prey-Predator" relationship. (✓)

(B) Plants' roots play a very important role for the plants' survival. Explain.

Plant roots absorb water and minerals from the soil and transport them to all the plant parts by the xylem vessels.

Model (2)



1 (A) Choose the correct answer:

1. The .... is/are the reproductive part(s) of the plant.
   a) flower b) stem c) leaves d) roots
2. All of the following are from the components of the human circulatory system except ....
   a) heart b) veins c) arteries d) phloem
3. An ecosystem consists of.................... .
   a) living organisms only b) non-living things only
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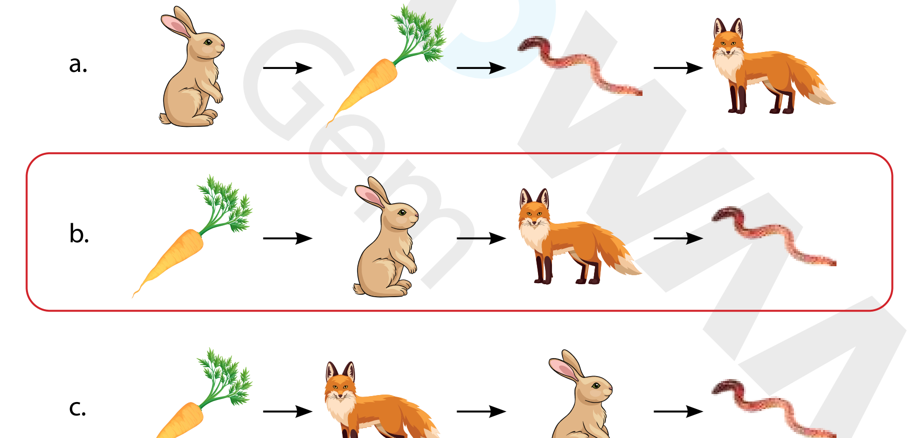
(B) What will happen if a plant is left in a dark room for several days?

It will grow weak, and short with pale and yellow leaves

2 (A) Put (✓) or (✗) in front of each sentence:

1. All organisms need energy to survive and grow. (✓)
2. Xylem vessels transport water and minerals in all directions. (✗)
3. The predator is the consumer eaten by another consumer. (✗)
4. The plant absorbs carbon dioxide from the air to make its own food. (✓)

(B) Which of the following is the correct order for the food chain?



3 (A) Complete the following sentences, using words between brackets:

1. Plants produce .... during photosynthesis that helps them grow, heal and reproduce. **(oxygen – glucose)**
2. .... consume the remains of dead animals and plants. **(Consumers – Decomposers)**
3. In longer food chains, ... are classified into primary, secondary and tertiary. **(producers – consumers)**
4. The .... captures sunlight to help the plant do photosynthesis. **(chlorophyll – flower)**

(B) Xylem plays an important role in obtaining life-sustaining elements.
What will happen to the plant if there are no xylem vessels?

The plant cannot transport water and minerals that are absorbed from the soil, so it cannot make its food and dies.

Model (3)

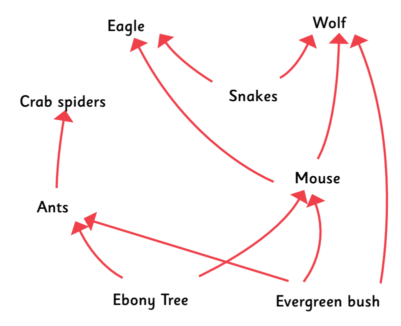


1 (A) Choose the correct answer:

1. Plants use energy from .... to make their own food from water and carbon dioxide.
   a) batteries b) fire c) sunlight d) wind
2. When a plant stem is placed in red-colored water, the plant color ....
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(B) Which of the following is a secondary consumer?

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2 (A) Put (✓) or (✗) in front of each sentence:

1. Plants can thrive without soil. (✓)
2. Stomata allow air to enter leaves to make photosynthesis. (✓)
3. Grasshopper is a primary consumer. (✓)
4. Producers are the first-link in the food chain while consumers are the final-link. (✗)

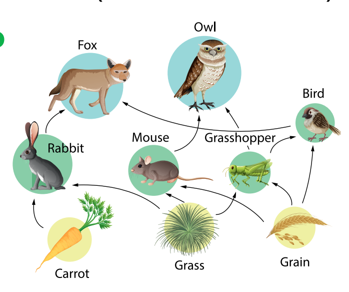
(B) Mention the common basic needs between plants and humans.

Water and air

3 (A) Complete the following sentences, using words between brackets:

1. The plant stores chemical energy in the form of .... (**sugars – oxygen**)
2. Fluffy seeds, like kapok tree seeds, can be dispersed by .... (**wind– being eaten**)
3. The consumer that eats another animal is called a .... (**predator – prey**)
4. During photosynthesis process, radiant energy changes into .... energy. (**heat – chemical**)

(B) Look at the opposite food web,then classify each organism into " producer, 1st consumer, 2nd consumer" in the given table:



Producers	Carrot - Grass - Grain
1ry Consumers	Rabbit - Mouse - Grasshopper Bird
2 ry Consumers	Fox - Owl



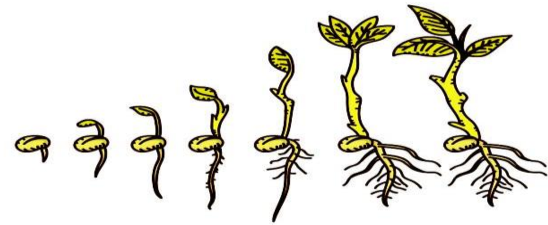
Theme one: systems

Concept 1.1 Plant needs

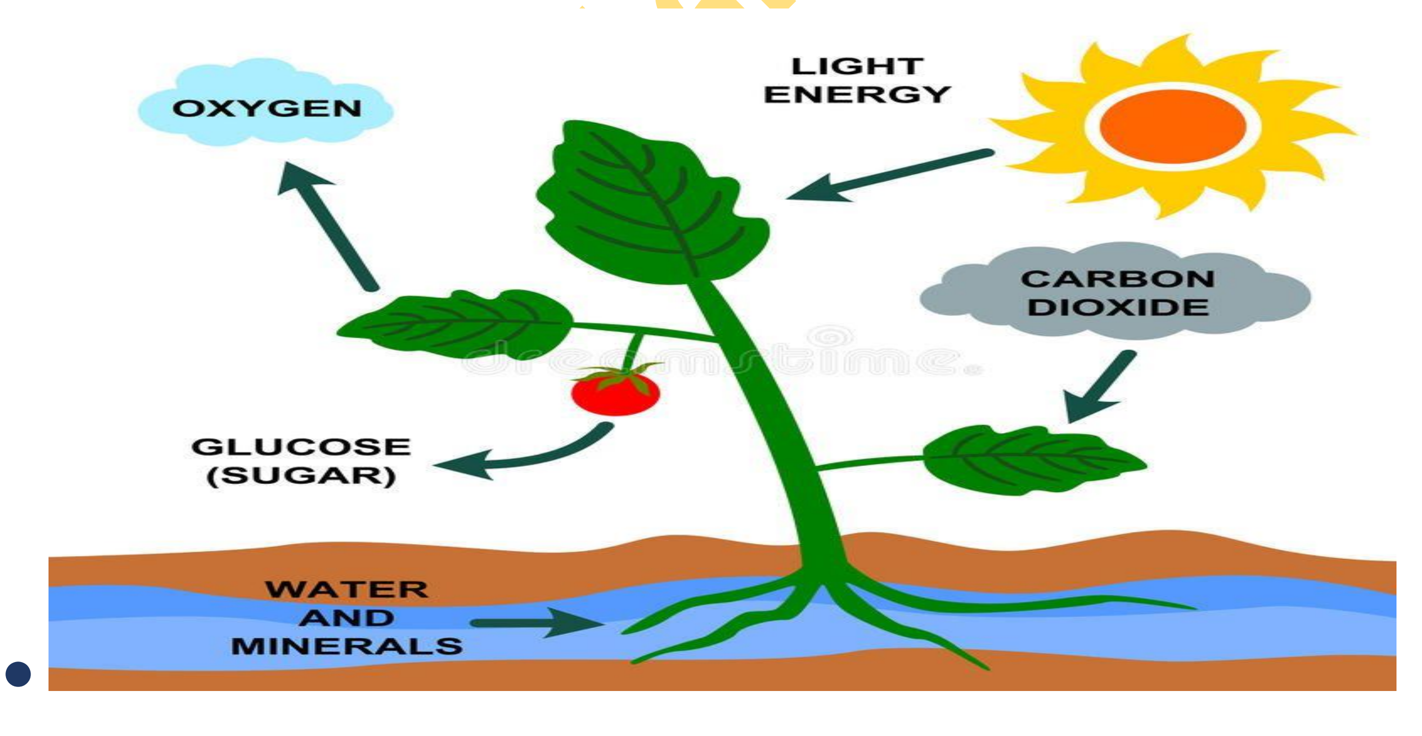
Lesson (1)

- *A plant is a living organism, like a human being that goes through different stage of growth.*





- **Needs of the plants to survive:**
- 1- water 2- Carbon dioxide from air
- 3-sunlight 4- nutrients from soil



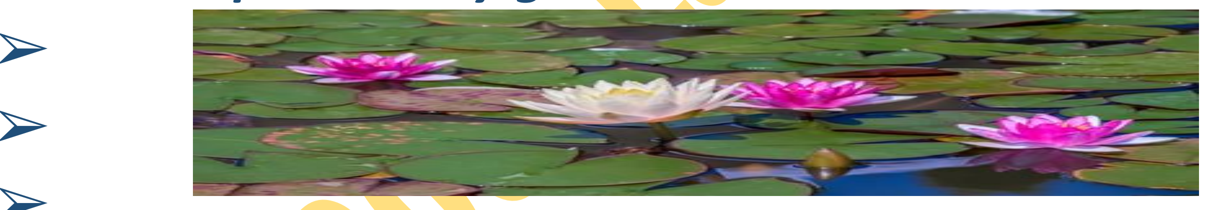


Plants needs

Basic need	• Sunlight • Water • Carbon dioxide gas
Not basic need	• Soil • Sugar • Oxygen gas

- ***Give reason some plants don't need soil as a basic need because:***

➢ ***1-Some plants only grow in the water.***



➢ ***2-Some plants grow on other plants instead of having roots in the soil.***





There are differences between human needs and plant needs to survive:

	Human Needs	Plant needs
Similarities	• The water • The air • The sunlight	• The water • The air • The sunlight
Differences	• He gets food from plants and animals. • He doesn't need carbon dioxide water food air	• It can make its own food by itself. • It needs carbon dioxide to make food. sun air needs water soil space

Plant and food

- Plant makes its own food
- Its food is a type of sugar that provides the plant with energy to grow.



- ***Plants make their food (sugar) in their leaves by "photosynthesis" process.***



Worksheet (1)

Q.1- Choose the correct answer:

1- All the following are plant basic needs to make its own food, except …………

a. Water. b. air. c. sunlight. d. rocks.

2- The ………..of plant get water and nutrients from the soil.

a. Root. b. stems. c. leaves. d. flowers.

3-Human and other animals need to eat to get………

a. Oxygen gas. b. energy. c. carbon dioxide gas. d. soil.

4-Water and nutrients are carried from the roots to the leaves through the ………

a. Stem b. soil c. fruits d. flowers

5- In photosynthesis process, plant produces…….. to get energy.

a. Oxygen gas. b. sugar. c. carbon dioxide. d. water.

Q.2-Write the scientific term of each of the following:

1. *A gas taken from the air by leaves to help the plant to make its own food.* (……………)
2. *A liquid substance that plants, animals and human need to survive.* (……………)
3. *The process by which plant can make its own food.* (……………..)
4. *The gas which is released from plants during photosynthesis.* (……………)

Q.3- Cross out the odd word:

1. *Carbon dioxide gas – water – oxygen gas – sunlight. (………….)*
2. *Roots- stem- leaves – sunlight. (……………………)*



Q.4- Choose from column (B) what suits it in column (a):

(A)	*(B)*
1.Sunlight 2.Soil 3.Water 4.Oxygen	a. is absorbed by the roots of the plant. b. is necessary for plant's growth. c. is not a basic need for plant growth. d. a gas which is produced during photosynthesis process. e. a gas which is the plant uses during photosynthesis process.

1-……. 2-…….. 3-……… 4-………



Lesson (2)

Do plants need soil?

Experiment shows how plants grow in the light and in the dark.

❖ **Tools**

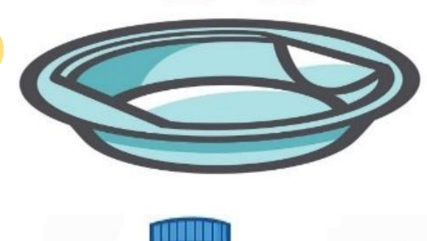
1. Plastic cup contain potting soil.



2. Paper towels.



3. Plastic plate.

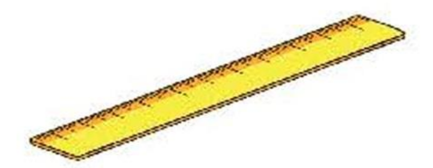




3. Water



5. Metric ruler





Steps:



1- Germinate some seeds in a wet paper towel.



2- Place three seeds in the top half of the paper towel and fold the bottom half of the towel up so that it covers the seeds then, place the paper to towel inside the plastic plate.

3- Plant the other three seeds in the cup that contains potting soil then, water the seeds.

4- Place the plate and the cup in a place where they can get sunlight.



5- Check the growth of seeds over the next several days. Wet the paper towel and water the soil as needed.



6- Measure the growth of each seed using the metric ruler.



Observations:

- ***The growth of the seeds placed in the paper towel is similar to that of the seeds planted in the soil***


After 7 days

- ***The seeds grown without soil would not grow as quickly as the seeds in the soil.***

❖ ***Conclusions***

- ***The seeds can grow without soil if they water and sun.***
- ***Plants can grow without soil for a while, but finally they need soil.***


After 14 days

Note :

Germination: **means that the plant sprouts and begins to grow from a seed.**





Hydroponic system: *a place full of water that contains minerals to grow plants .*

Worksheet (2)

Q.1 Look at the opposite figure, then choose the correct answer:

a-This process is called……….

(Germination – photosynthesis – respiration)

b- Seeds of plant will need ………………… to complete its growth after many days.

(Soil – water – insects)



Q.2 Look at the following figures then, complete the following sentences :





Figure (A) *Figure (B)*

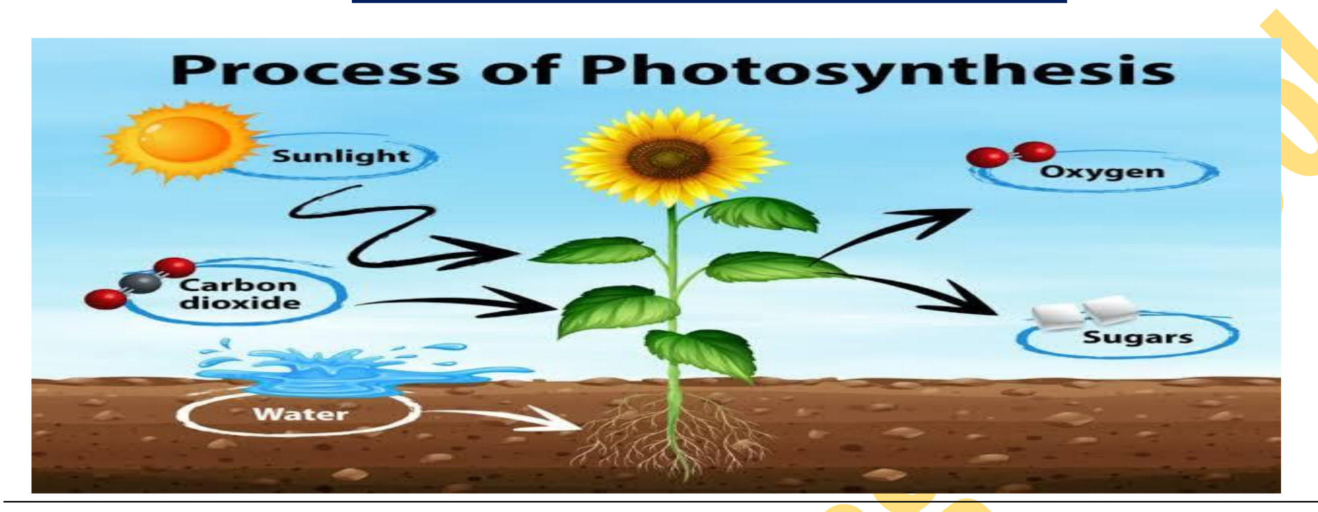
1- The seeds in ………..grow faster than those in ……….

2- Seeds in figure (b) should be transferred into ………. to complete its growth.



Lesson (3)

Photosynthesis process



- ***Photosynthesis process:***

  It is the process in which plants use the energy in sunlight to make their own food.

- ***The plant needs :***

  1. ***Sunlight (sun)***
  2. ***Carbon dioxide gas (air)***
  3. ***Water and salts (soil)***

The plant products :

1. ***Oxygen***

2. Nutrients (sugar , starch , fats , and protein)

Parts of a Plant

Shoot system

Flower
Helps in reproduction

Leaf
Performs photosynthesis

Fruit
Protects the seeds

Stem
Supports the plant

Root system

Root
Absorbs water and minerals

The structure of plants

1. Leaves:

1. **They make food for the plant by photosynthesis process.**
2. **They contain chlorophyll which gives them their green color.**
3. **they collect sunlight and get energy from it**

The air enters the leaves through the <u>stomata</u>



Stomata:

They are pores that allow air to move into the leaves.



2. Stem :

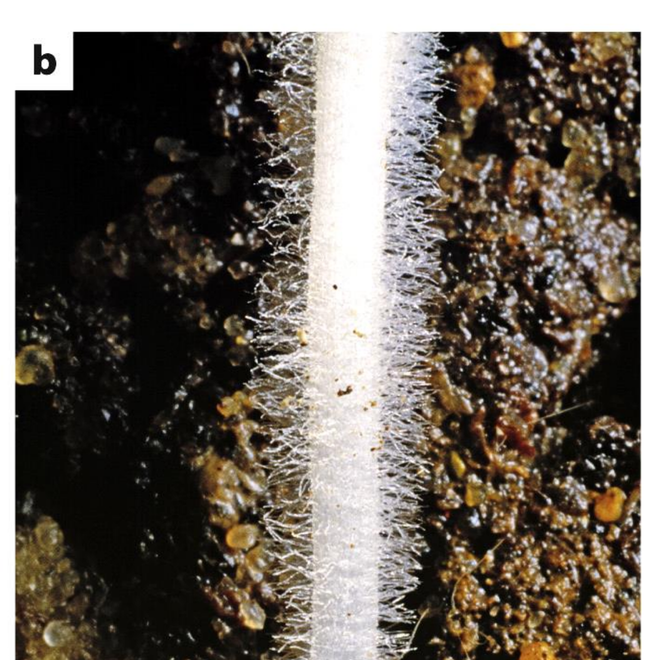
1. They transport water and nutrients from the root to the leaves through tubes called xylem.
2. They supports leaves and flowers of the plant.

3. Roots:

1. They absorb water and nutrients from the soil .
2. They fix (anchor) the plant in the soil.
3. Roots contain root hairs : to absorb more water and nutrients

Root and root hairs







Xylem	Phloem
1. Transfer water and nutrient from roots to other plant's part.	1. Transport food from leaves to the other parts of the plant.

The Phloem carries food made by the leaves to all sections of the tree.

Xylem tubes carry water and minerals upwards from the roots.

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Worksheet (3)

Q.1: Write the odd word

1. *(leaves , stem , eyes , root)* (…………….)
2. *(air , sunlight , water , vegetables)* (…………….)
3. *(stem , flower , oxygen , roots)* (…………….)

Q.2: Put true or false

1. *Without sunlight the green plant will die quickly. ( )*
2. *The plant that left in the dark has green leaves. ( )*
3. *The plant needs water only to grow up. ( )*
4. *Photosynthesis process is so important for plants. ( )*
5. *Leaves and stem only are the structure of the plant. ( )*
6. *The air enters the leaf from xylem. ( )*
7. *Stomata is a tiny opening inside the leaf. ( )*
8. *Plant's roots absorb water and nutrients from the soil and transport it to the other parts of the plant. ( )*

Q.3: Write the scientific term

1. *It is the process through which plants use the energy in sunlight to make their own food. (…………………………….)*
2. *The plant needs that comes from the sun (…………………)*
3. *Part of the plant that collect sunlight (………………..)*
4. *The air enters the leaf from it (…………………)*
5. *Small opining in leaves (…………………)*
6. *Vessels in the stem of plants connect the stem with leaves (…………………)*



Q.4: Write the definition Of the following:

1. **Photosynthesis process:**

……

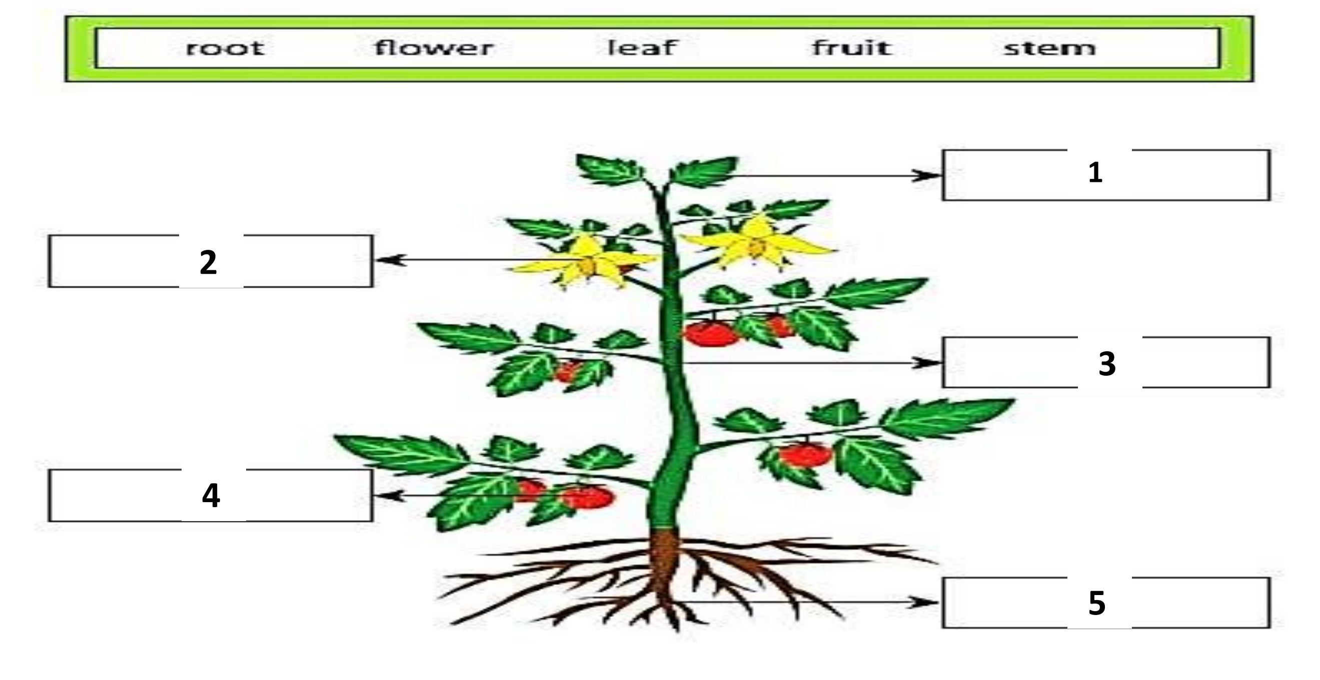
2. **Stomata**

……

3. **Xylem**

……

Q.5: Complete the following:



1. (……………………) 2. (……………………)

3. (……………………) 4. (……………………)

5. (……………………)



Lesson (4)

Parts of plants

- **There are many forms of stems.**

1. **Wood stem such** *as tree trunks and shrubs.*



2. **Upright stems** *such as most of flower.*



3. **Climb stem** *such as vines (grapes).*



4. **Tubers** *that stem extend* **underground** *such as potato plant.*



5. ***Runners** that stem extend above and along the ground such as strawberry*

There are two kinds of leaves:

1. ***Narrow leaves**: that look like needles, such as pine trees.*



2. *Flat, wide leaves.*



- ***Give a reason for:***

The life on Earth without plants would be impossible?

Because during photosynthesis process plants produce oxygen gas that animals and people need to breathe.

Worksheet (4)

Q.1 Complete :

1. Human and animals depend on plants as a source of ………....

2. Plants absorb…………., and ………….to make its food

3. Nutrients and water move up through the stem of the plant through the vessels called……….

4. Plants need………..energy to make food.

5…………….. is one of the important functions of the roots.

6. The stem of most flowers is………………….

7. The stem of the plants that extend under the ground is called…………………..

8. Pine tree leaves are…………………..

Q.2 Put (true) or (false):

1. *Plant leaves contain openings. (   )*
2. *Tubers extend on the ground and help in the formation of new plants.   (*
3. *The photosynthesis process occurs inside the leaves of plants (   )*
4. *The roots make the food for the plant. (   )*
5. *Without plants, life on earth is impossible. (   )*
6. *Xylem and phloem differ in plant functions. (   )*
7. *Sunlight is the necessary source of energy for plants to make their own food. (   )*



Lesson (5)

Comparing plant and human systems

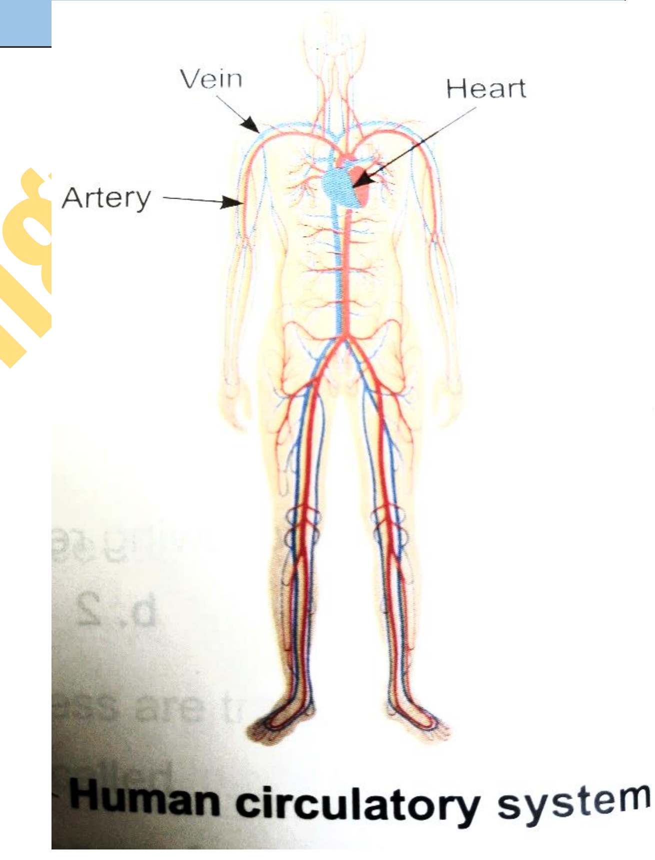
The human circulatory system consists of:

The heart and blood vessels (arteries and veins).

A

Circulatory system:

It is the system that transports blood and other fluids throughout the body.



Human circulatory system

Arteries:

Carry blood that is rich with oxygen and nutrients (glucose) from the heart to the body cells so that the body can grow.

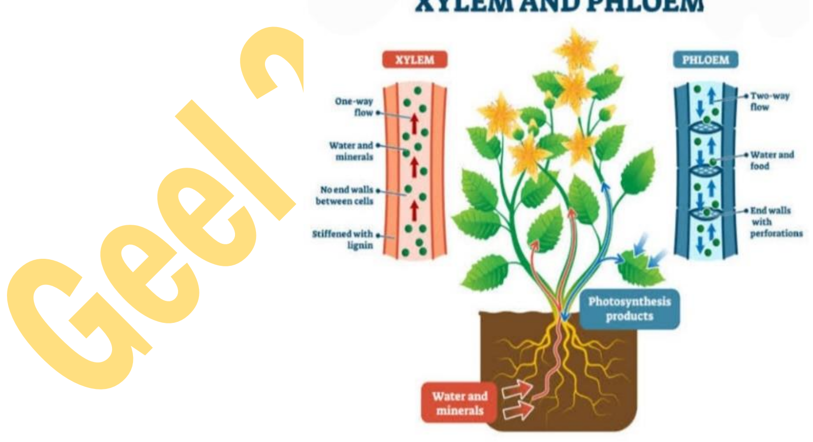
Veins:

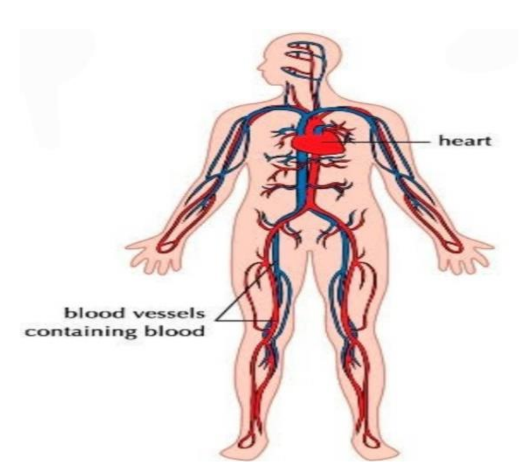
Return the blood that carries carbon dioxide and is low in nutrients and oxygen back to the heart, then to the lungs where the blood carries oxygen again.



	Plant transport system	Human circulatory system
Similarities	• **Both have system of vessels to transport water, nutrients and gases.** • **Both have one- way vessels.**	
Differences	consists of : • Xylem tubes carry water and nutrients from the roots to the leaves. • Phloem tubes carry sugars from the leaves to all plant parts.	-it consists of : • Arteries carry blood rich with oxygen and nutrients (glucose) from the heart to all body parts. • Veins carry blood that contains carbon dioxide from all body parts back to the heart.









Plant food

- *During photosynthesis process, light energy of the sun is transformed into chemical energy that is found in glucose.*

During photosynthesis process, the plant also produces oxygen and water which are released into the air.

- *Flowers are the reproductive parts of many plants.*

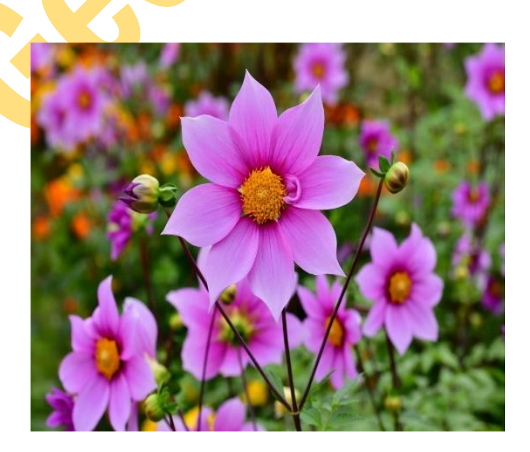
Flowers and seeds

Plant reproduction:

It is the process of making new plants.

Function of the plant's flowers:

- *Flowers produce seeds for the plant that help the plant to reproduce.*
- *When seeds receive air, water and the correct temperature, they can grow into a new plant.*







Worksheets (5)

Q1- Complete the following sentences:

1. Plants make their energy in the form of……….sugar during photosynthesis process.

2. Air enters plants through stomata on their…… while it enters the human body through………. and……….

3. Human circulatory system consists of ……….. and……….

4. Arteries carry blood rich in……….and oxygen from the heart to……….

5. The blood and other fluids are transported throughout the body by the………..system.

6. The plant makes sugar in its…………. during photosynthesis process.

7. Transport system in the plant consists of two types of vessels which are………..and………

8. Arteries carry oxygen and nutrients from the .... to all body parts, while………in plant's stem carry water from the………. to the leaves.

9. In plant's leaves,………. energy is converted into……… energy during photosynthesis process.

10. Flowers of the plant produce........... that help it to…………

11. There are two types of vessels in the human circulatory system which are………. And……..



Q.2- Give reasons for:

1. Flowers are important parts for the plant.

____

____

2. Circulatory system has an important role for human to survive.

____

____

3. Xylem in plant is a one-way vessel.

____

____

Lesson (6)

Seed dispersal

It is a process that seeds are transported from one place to another.

- ***Ways of seed dispersal in nature:***

1. Floating on water or rivers or lakes.
2. Traveling by wind.
3. Sticking to animal's fur or human clothes.
4. Being eaten by animals and comes out with their stool.



Examples:



▸ Look at the following seeds in the pictures below, then [illegible] think the seeds in the pictures move from one place [illegible]



Coconut seed



Maple seeds



[illegible]



Burdock seeds



Apple seeds



Dandelion seeds

Ways of seeds dispersal	Seeds
Floating on water	Coconut seed
Traveling by wind	Maple seeds- dandelion seeds (both of them are light seeds)
Sticking to animal fur	Burdock seeds (have spines)
Being eaten by animals	Tomato seeds- apple seeds



Concept (1.2)

Lesson (1)

Ecosystem:

It is an area (or community) that includes living organisms and non- living things that interact with each other.

Living organisms as: *plants, animals and humans*

Non-living things as: *air soil and water*

Example of ecosystem: ***as ocean, a rainforest, a desert or a sea***



The interaction that present in an ecosystem occurs between animals and plants only and not between all the components.

How does energy flow through an ecosystem?

Energy flow through an ecosystem from plants to animals and between animals when they eat each other, then when living organisms die, their energy is returned to the soil.



Hawks in ecosystem



Important notes for Hawks

- ***Hawks get energy from food.***
- ***Hawks eat different types of animals such as, snakes, mice, fish, birds, squirrels, rabbits and other small ground animals.***
- ***Hawks do not eat plants, but they eat animals who eat plants, so they also depend on plants for energy.***

There are few predators that can attack hawks such as eagles or other hawks.

- ***When a hawk dies, it decomposes and its energy is returned to the soil.***

Energy Flow in Ecosystems

A healthy ecosystem is a community that provides food, water and shelter to all living organisms that live in it.



What are the type of food that living organism depends on :

1-Caracal feed on rat (mice)	*2-Rabbit feed on grass*	*rd feed on worm or tterflies*

- *There is a relationship between sunlight and energy that we get from the food.*
- *Sun is the main source of energy in all ecosystem.*
- *Animals need energy that comes from eating plants and other animals, as they cannot produce their own food.*

Give reason : sun is the main source of energy in all ecosystem.

-The light energy which comes from the sun is converted into chemical energy in a form of food that humans and animals eat to get energy .

- ***Food is energy***





- ***The food we eat***
- ***The oxygen we breathe***

Sun is the primary source of energy for all organisms

Plants	Animals
During photosynthesis process, the sunlight converts carbon dioxide and water into glucose inside the plant leaves. **Note:** *Carbon dioxide :is a gas present in air and necessary for the formation of plant food.*	***Animals including humans cannot make their own food*** ***They get energy from the environment in which they live.*** ***Different animals can get their Food by:*** ***Eating plants only.*** ***Eating other animals that eat plants.*** ***Eating both plants and animals.***



Worksheet (1)

Q.1 Write the scientific term of each of the following:

1. A community that contains living organisms and nonliving things. (…………………………)

2. The process that takes place inside plants through which we can get oxygen. (…………………………)

3. It is a form of energy that the plant need during Photosynthesis process. (…………………………)

4. It is the primary source of energy for all living organisms on the Earth. (…………………………)

5. A type of living organisms that can produce its own food by Absorbing sunlight. (…………………………)

6. The sugar that is formed inside plants during photosynthesis Process. (…………………………)

7. The gas that is present in air and necessary for the formation of plant food. (…………………………)

8. The gas that is produced from photosynthesis process. (…………………………)

9. Living organisms that both humans and animals need to Survive. (…………………………)

Q.2 Give reasons for:

1. Human needs to eat some animals and plants

……………………………………………………………………………….



Lesson (2)

Food chains:

- *Living organisms eat food to get the energy to survive.*
- *Living organisms feed on other organisms, so energy passes between them.*
- *Living organisms are classified into three groups according to their way of feeding, which are:*

(1) Producers.

(2) Consumers.

(3) Decomposers.

1. Producers:

They are a group of living organisms that can make their own food .

🖶**Nearly all of the producers on the Earth are plants.**

2. Consumers :

They are living organisms that eat other organisms to get energy .

Primary Consumers	***Secondary consumers***	***Tertiary consumers***
They are animals that eat plants such as many insects .	*They are animals that eat the primary consumers like birds are secondary consumers, because they eat insects and other organisms that eat plants.*	*They are animals that eat the secondary consumers like large meat-eating animals like crocodiles.*

3. Decomposers

They are organisms that carry out the process of decomposition by breaking down or decaying dead organisms.

Examples: fungi, bacteria, worms and millipedes



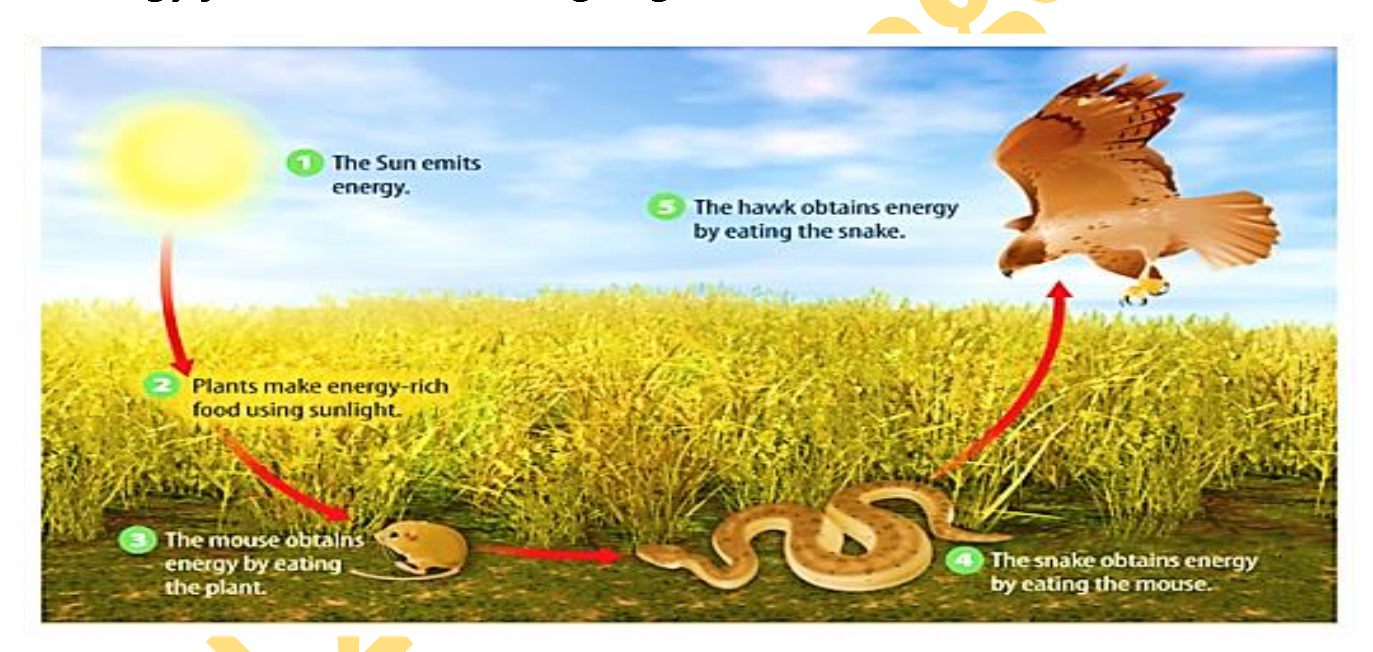
Give reason : worms and millipedes are considered as decomposers .

- *Because they eat dead matter and produce wastes which increase the soil fertility .*

➤**Decomposition:** *it is the process through which decomposers can recycle nutrients into the soil.*

● *Food chain*

It is a model that shows one linear set of feeding relationships and energy flow between living organisms.



This figure shows the recycling nutrients back into the soil

- **The first link in the food chain is plant (producer).**

Because it uses the energy from the Sun to produce its own food.

- **The second link in the food chain is mouse (primary consumer).**

Because it eats plant,

- 🖶**The snake is considered as a (secondary consumer).**

Because it eats mouse,

- **Then the eagle is considered as a tertiary consumer.**
  Because it eats snake.
- **In the final the eagle dies, it decomposes by decomposers and its energy is returned to the soil which makes the food chain continuity.**
- ***Predator and prey***

In the previous food chain, we can observe that

✶***The hawk and snake are "Predators", because they hunt other animals.***

✶***The snake and the mouse are "Preys", because they are hunted by other animals for food.***

So, both predators and preys pass food and energy through the food chain.

Prey:

Is any animal that is hunted and eaten by another animal.

"Predator

Is any consumer that hunts and eats another animal .

Worksheet (2)

Complete the following sentences:

1. Living organisms include…………….. , Consumers and decomposers.
2. Producers can make………………Sugar which is rich in energy through…………. process.
3. Decomposers and …………………. depend on producers to get their energy.
4. The most common producers are……………

5. The light energy of the Sun cannot flow directly to consumers and……………….

6. In a food chain, the energy flows from…………… Consumer to a secondary consumer

7. Decomposers are responsible for .... nutrients to the soil, that are needed for plants growth.

2- What happens if .?

1. All primary consumers disappear from a certain food chain.

………

……………………………………………………………………………………………………….……

2.All types of decomposers are absent from an ecosystem.

……

……………………………………………………………………………………………………….



Lesson (3)

• FOOD CHAIN

Primary Consumer
Grasshopper
Secondary Consumer
Frog
Sun
Water
Grass
Producer
Food Chain
Snake
Tertiary Consumer
Fungi
Decomposer
Hawk
Final Consumer

• FOOD WEB:

- **It is a model that shows many different feeding relationships among living organisms**
- **The ways in which many food chains interact within an ecosystem form a food web.**



WORKSHEET (3)

1 Choose the correct answer

1. All the following are types of food for primary consumers, except

a. grasses. b. seeds. c. fruits. d. eagles.

2. A hawk can eat……………. when snakes are completely disappear from an ecosystem.

a. grasses b. grasshoppers c. birds d. leaves

3. It is better for any predator to depend on…………………………to get its energy and survive.

a. one species of consumers only b. many species of consumers

c. one species of decomposers only d. many species of decomposers

4. All types of plants are similar in all the following characters, except they……………………………………

a. are able to make photosynthesis process. b. are eaten by primary consumers.

C. can feed on predators. d. live in different types of ecosystems

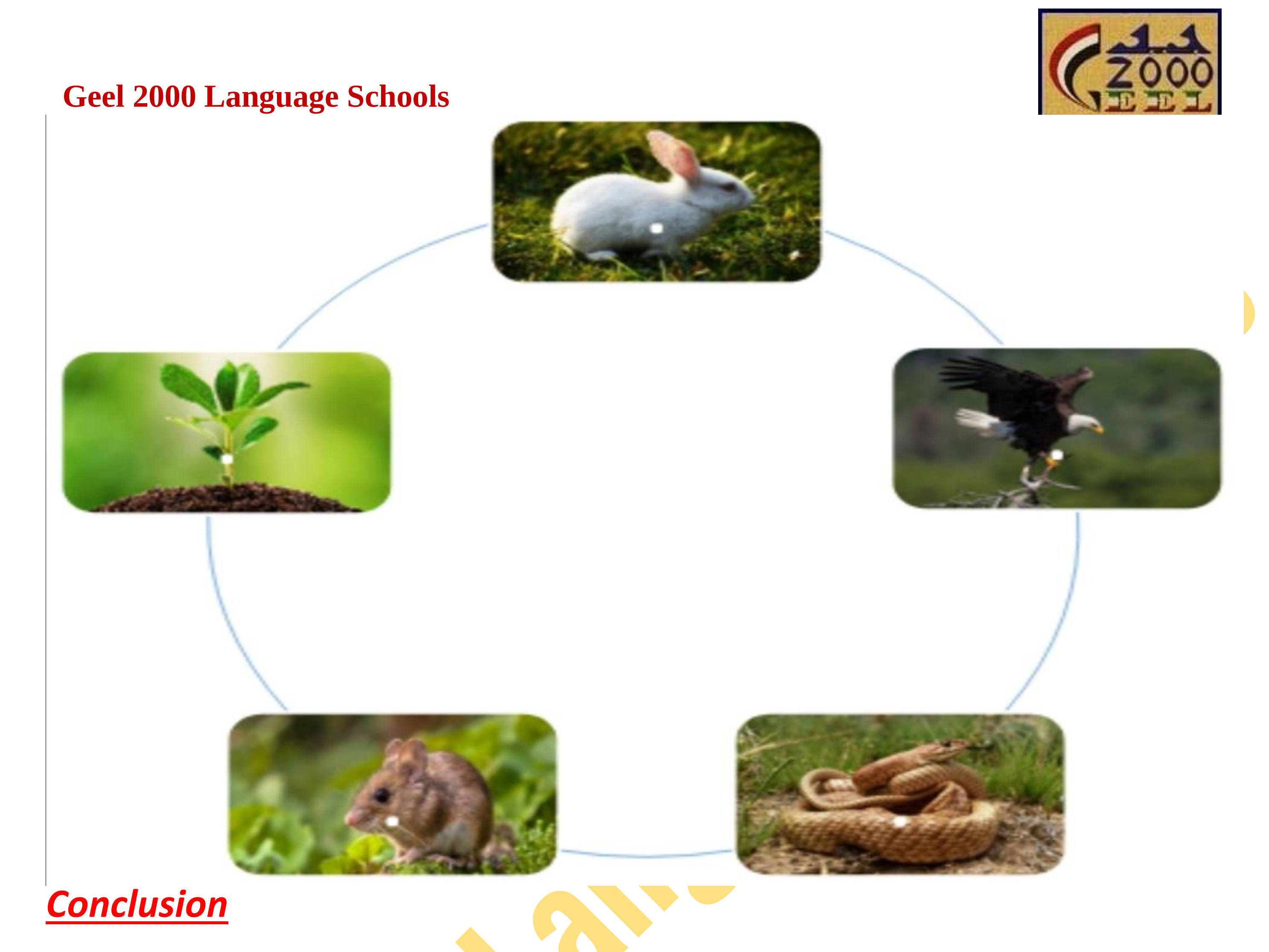
5. Human is a …………………… living organism.

a. producer b. consumer c. decomposer d. predator

6. Secondary consumers can eat only………………

a. decomposers. b. producers.

c. Primary consumers. d. tertiary consumers.



Conclusion

- ***Food web is a model that describes energy flow and feeding interactions between living organisms in an ecosystem.***
- ***Food webs show that different organisms in an ecosystem are connected to allow energy to pass between them to survive, where:***
- ***Producers are eaten by some consumers.***
- ***Some consumers are eaten by other consumers.***
- ***Some consumers may eat the same producer or prey.***



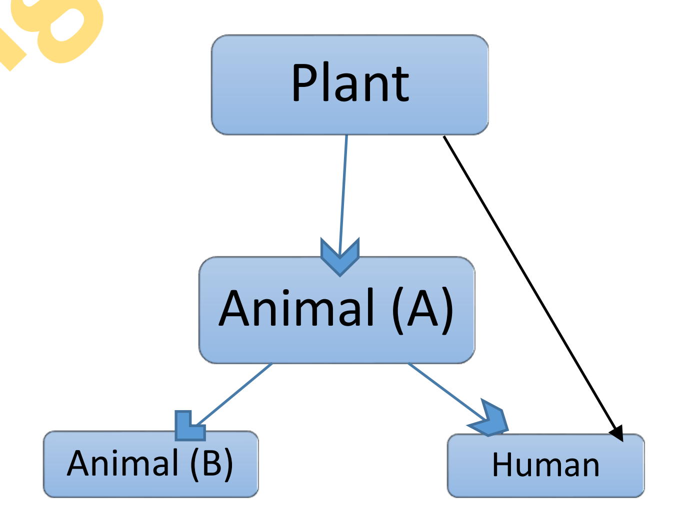
Worksheet (4)

1.Complete the following sentences using the words below:

(Primary consumers - food web - food)

1. We cannot make a food web, if we don't know the types of………….. that the animals eat.
2. The interconnected food chains are known as…………….
3. An eagle can eat rabbits and mice, which are considered as……………

2. Study the opposite food web, then choose the correct answer:



1. This food web starts with

Which are producers.

a. human

b. plant

c. animal (A)

d. animal (B)

2. Human can get energy from……….

a. plant and animal (B).

b. animal (A) only.

c. plant only.

d. plant and animal (A).

3. Energy cannot flow directly from the producer to………………

a. human and animal (A).   b. human and animal (B).

C. animal (B) only.   d. animal (A) only.



4. The living organism that gets energy directly and indirectly from the producer, Is……………………….

a. animal (A). *b. animal (B).*

c. plant. *d. human.*

5…………….is considered as a primary and a secondary consumer at the same time.

a. Plant *b. Human*

c. Animal (A) *d. Animal (B)*

Q3.Study the Following figure, then choose the correct answer below

sun *Plant* *Grasshopper* *Frog* *Snake*

Which of the following, is necessary for survival of all living organisms?.......

a. Plant. *b. The Sun.* *c. Grasshopper.* *d. Snake.*

Give Reason

1- Roots have important role in the photosynthesis process
Because roots absorb water and nutrients from the soil

2- Photosynthesis process is important for plants to survive
Because it helps the plant to make its own food

3- Green plants can make their own food
Because they can make photosynthesis process

4- The presence of stomata on the surface of plant's leaves
To allow gases to move into and out of the plant

5- Xylem vessels are important for the plant
Because they transport water and nutrient from roots to leaves

6- There is no life on Earth in the absence of plants
Because plants produce oxygen gas during photosynthesis process which is important for all living organisms to survive

7- Chlorophyll in plant's leaves has an important role in the photosynthesis process
Because it absorbs the sunlight to make photosynthesis process and gives the leaf its green color

8- The presence of hairlike structure in plant's roots
To increase the amount of the absorbed water

9- Flowers are important parts for the plant
Because they produce seeds for the plant reproduction





10- Circulatory system has an important role for human to survive

Because it transports blood through the body

11- Xylem in plant is a one-way vessel

Because it carries water and nutrients from roots to leaves in one direction

12- Seeds dispersal may take place by animal in two different ways

Because seeds can stick to animal fur or being eaten by animals and come out with their stool

13- Seeds of maple or dandelion plants can disperse through wind easily

Because they are light seeds

14- Burdock seed can stick to animal fur

Because they have spines

15- Human or animals needs to eat some animal and plants

To get energy from food to do different activities because they cannot make their own food

16- Sunlight is important for all living organisms

Because it is absorbed by plants to make their own food then animals and humans eat these plants

17- Consumers depend on producers to get their energy

Because they cannot make their own food





18- Soil fertility depends on decomposers

Because they return the nutrients of dead organisms back to the soil

19- Sticky seed of some plants can stick to human clothes or an animal's body

To disperse their seeds to other places

What happens if

1- Plants have no stem

Water and nutrients will not be carried from roots to leaves

2- Plants can't get carbon dioxide gas from air

Plants cannot make photosynthesis process so cannot make their own food

3- we put a green plant in a dark room for many days

plants cannot absorb sunlight to make photosynthesis process and the leaves will be yellow/pale green

4- we put a seed of bean in a wet soil

It will germinate and grow well

5- we put a bean seed in a wet paper towel for more than two months

At the beginning it will germinate and grow but later it will die

6- stomata of a plant get closed for a long time

Gases cannot move into or out the plant leaves so plants will die

7- Plant's leaves don't contain chlorophyll

Plants cannot absorb the sun light and cannot make photosynthesis process so the leaves will not be green

8- The plant doesn't have roots

The plant cannot absorb water and nutrients from the soil





9- The plant stops making photosynthesis process for several days

It cannot make its own food and it will die

10- Plants can't produce glucose sugar during the photosynthesis process

Plants cannot get energy to grow and survive

11- Humans don't have circulatory system

Human cannot transport blood through the body

12- We remove the flowers of a plant

Plants cannot produce seeds for reproduction / Plants cannot reproduce

13- There is no sunlight reaches the Earth's surface

The plants cannot make their own food through the photosynthesis process

14- A hawk is placed in an ecosystem that doesn't contain any living organisms except plants

It will move to another ecosystem, or it will die

15- All primary consumers disappear from a certain food chain

The secondary consumers will move to another ecosystem, or they will die

16- All types of decomposers are absent from an ecosystem

Dead animals will not be decomposed, and their nutrients will not return to the soil



September exam

Science exam

Grade 5

Question 1 : put true or false

1- the growth of plant decrease in the dark ( )

2- the stem of tree is runner stem ( )

3- the plant get its own food through photosynthesis process ( )

4- the transport system in plant look like the circulatory system of human ( )

5- the flowers is the organ which responsible for reproduction in the plant ( )

Question 2 : choose

1- which of them transport blood to heart in human.........

(veins - arteries - pholem - xylem)

2- from the non - basic need of plant is...........

(sunlight - soil - water - co2)

3- the responsable for fixing plant in soil is..........

(stem - chlorophyll - root - seed)

4- ....transport water and nutrients from root to leaves

(pholem - xylem - flowers)

5- during photosynthesis process............energy is converted into chemical energy

(kinetic - light - chemical - mechanical)

Question 3 : complete

1............transport the food from leaves to all parts of plant

2- plant produce ....gas during photosynthesis process

3- the .... is the reproductive organ of the plant

4- the heart consist of ....chamber

5- plant need ....,............................and ....to make their own food

Question 4: correct the wrong word

1- leaves of the plants are responsible for absorption of water from the soil

2-- pholem in the plant's leaves absorb energy of sunlight

3- the process through which plant make their own food is called germination process

4- xylem in plant is two- way vessel